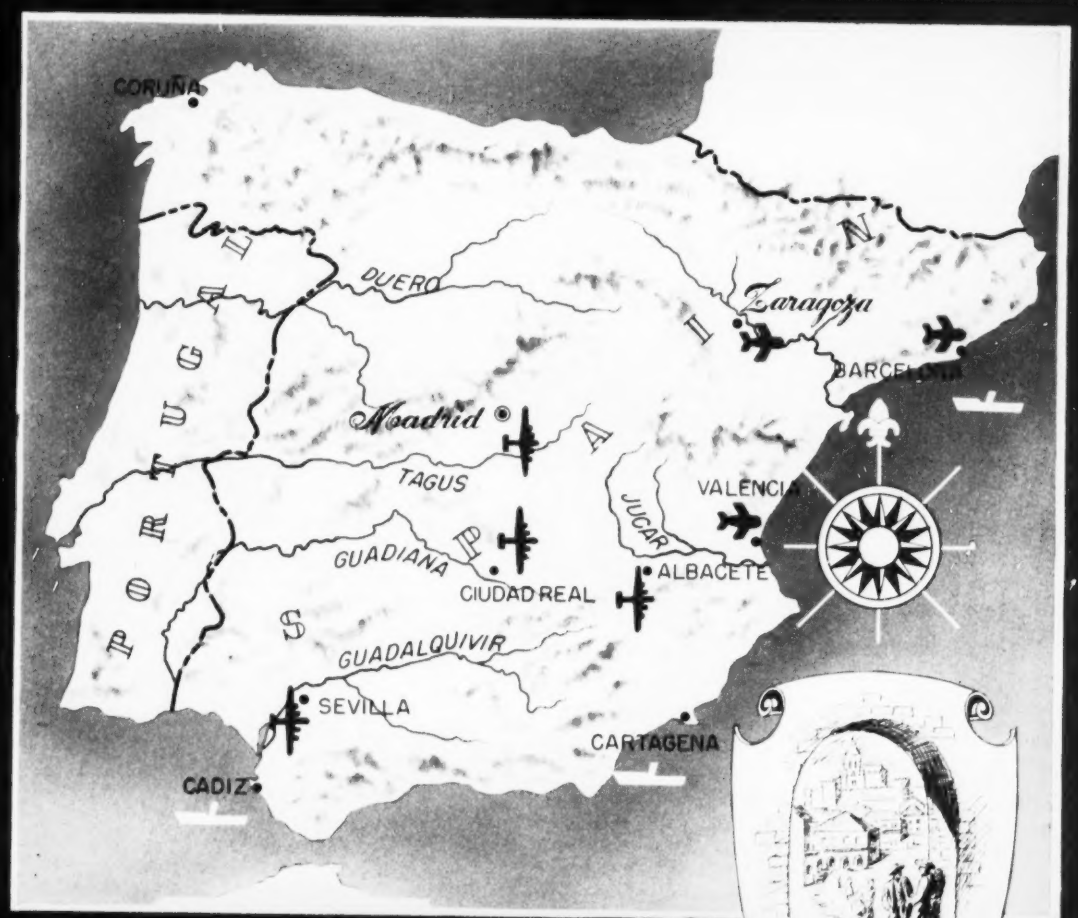
ENGINEERING NEWS-RECORD



SPAIN

ENGINEERING REPORTS:

OPERATING ECONOMY for the new G-E equipped Norfolk-Portsmouth tunnel is provided by its variable-intensity fluorescent lighting system, Tri-Clad* ventilating-fan motors, centralized control, and reliable power supply.

G-E FLUORESCENT LIGHTING provides safer, more uniform, shadowless illumination. To avoid light-blindness at portals, intensity is increased during bright sunlight periods.

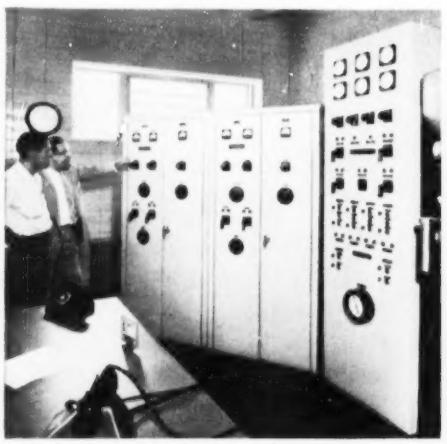
VENTILATION is provided by four exhaust fans, each driven by a G-E 2-speed, 250/40-hp motor. Motors run at high speed only in emergencies.

Continuous lines of light increase safety of new tunnel

G-E electrical system for Norfolk-Portsmouth Tunnel also features one-man control, reliable power supply

An outstanding feature of the 3350-foot tunnel, recently built beneath the Elizabeth River as part of a bridge-tunnel project linking Norfolk and Portsmouth, Va., is the electrical system that helps handle heavy traffic with greater safety and economy. The electrical equipment was designed by General Electric engineers working closely with the Elizabeth River Bridge Tunnel Commission, its consultants, Parsons, Brinckerhoff, Hall & Macdonald, who designed the system, and its contractor, Merritt-Chapman & Scott.

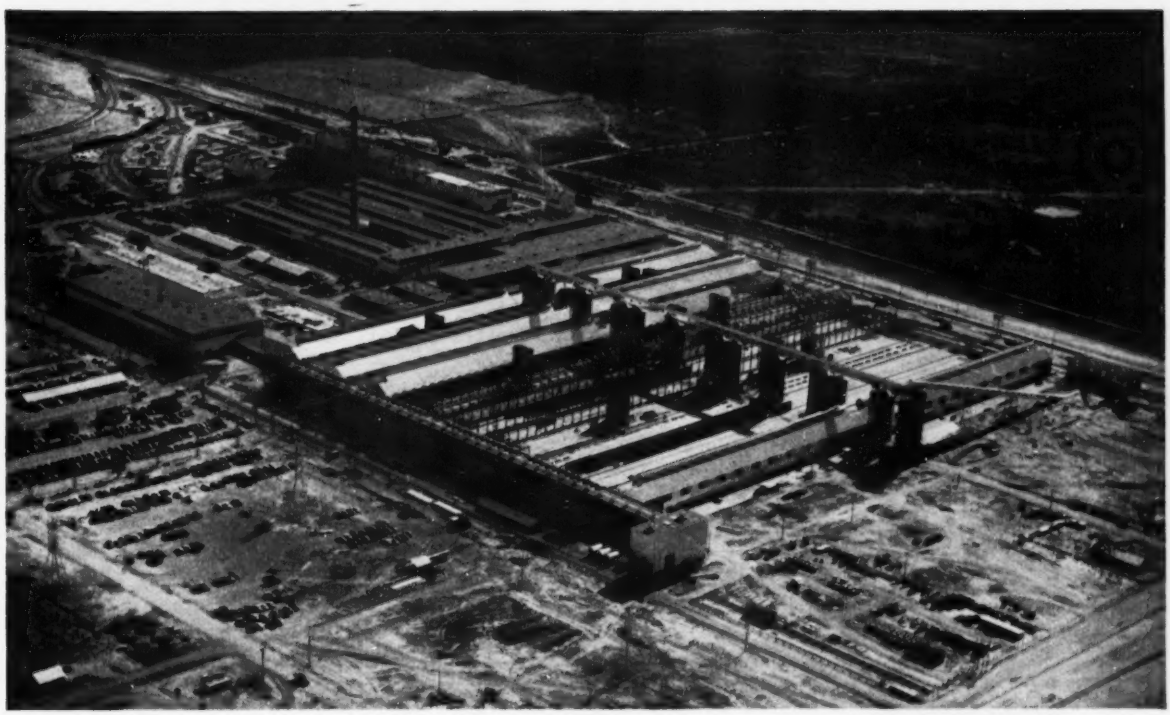
Let G-E engineers help your engineers or consultants on electric equipment for heavy construction projects. Contact your local G-E Apparatus Sales Office early in the planning stage. General Electric Company, Schenectady 5, N. Y. *Reg. trade-mark of General Electric Co. 664-27



ONE-MAN OPERATION is a key feature of this main control panel from which lighting, ventilation, and two G-E unit substations are controlled.

Engineered Electrical Systems for Heavy Construction

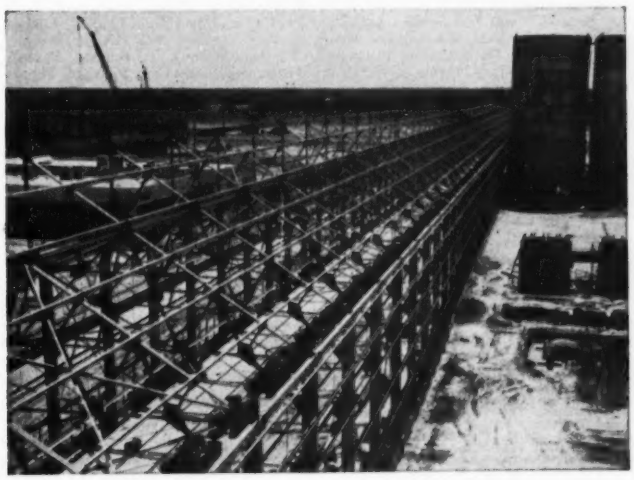
GENERAL ELECTRIC



Aerial view of 90-acre Rockdale Works of Aluminum Company of America. Steelwork fabricated and erected by Bethlehem.

New Giant in the Southwest

This huge smelting plant at Rockdale, Texas, northwest of Houston, is the new Rockdale Works of Aluminum Company of America. It reduces refined bauxite to aluminum by means of an electrolytic process. It is the country's first aluminum plant to use lignite as a source of power.



Structural steel and storage tanks for one of the plant's long pot rooms.

The Rockdale Works is now in operation, but is not scheduled for completion until the fall of 1953. It will include a smelting plant with four pot lines and a plant for the manufacture of the carbon electrodes required in the electrolytic smelting process. Annual capacity of the new plant is expected to be approximately 170,000,000 lb.

The Rockdale Works covers 90 acres. It consists of 25 large industrial-type buildings, for which Bethlehem fabricated and erected 11,000 tons of structural steel.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

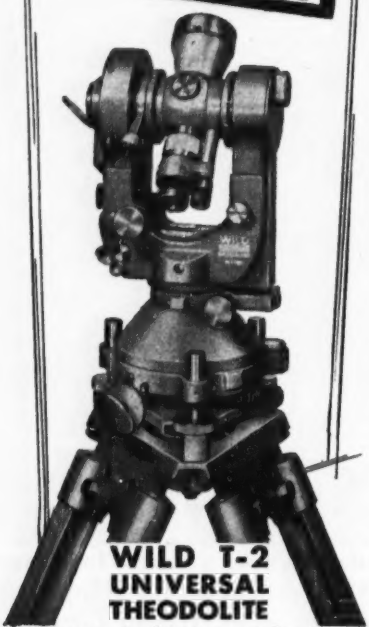
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL CONSTRUCTION

TOMORROW'S INSTRUMENT TODAY!

WILD HEERBRUGG



WILD T-2 UNIVERSAL THEODOLITE

The recognized instrument for triangulation, bridgework and other precise engineering jobs... The Instrument For YOU.

You read both circles by microscope ...direct to one second. Every reading gives the mean of two diametrically opposite points of the circle, and is therefore free from eccentricity-errors.

The optical plummet makes centering above a ground point an easy and quick operation even on windy days. The telescope with its big field of view is "easy on the eye" and can be transited both ways.

Available accessories include battery box for night work, traverse targets, Invar Subtense Bar for optical distance measurement.

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ENGINEERING NEWS-RECORD

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Robert F. Boger
Publisher

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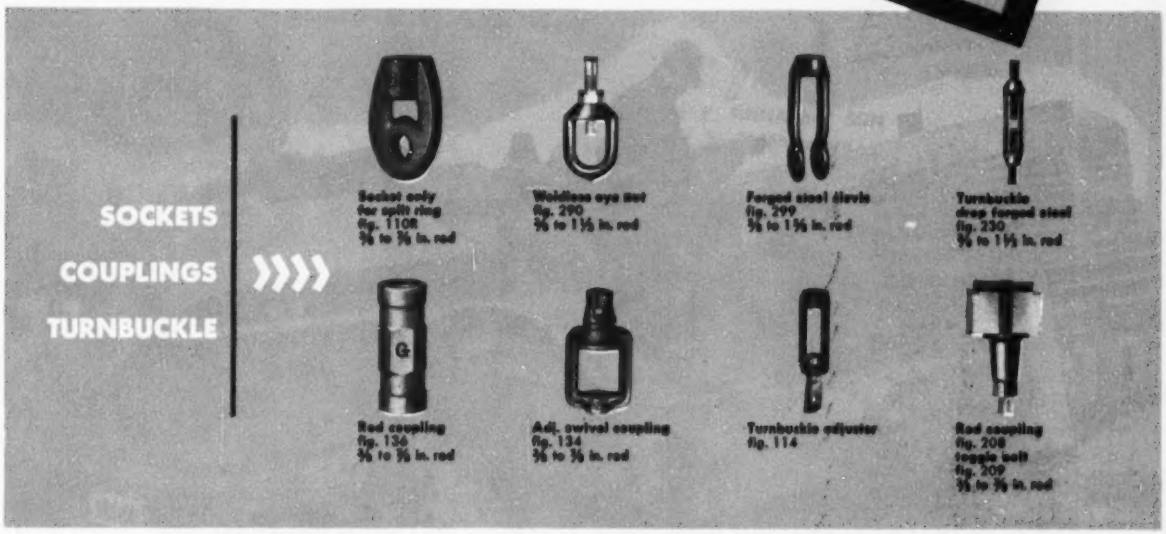
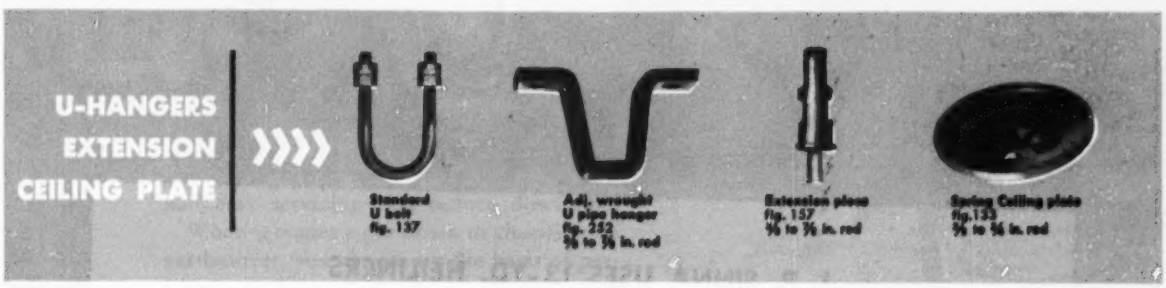
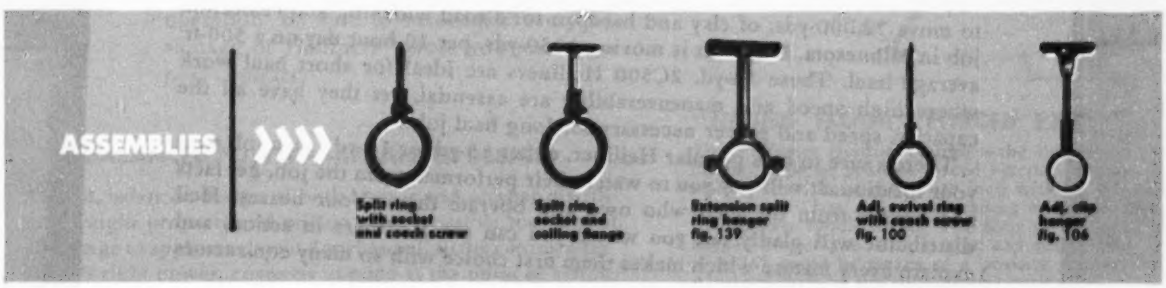
ADJUSTABLE PIPE HANGERS AND SUPPORTS

for every piping requirement

NO. 5 OF A SERIES SHOWING THE GRINNELL LINE


SOCKETS
COUPLINGS
TURNBUCKLE
Socket only for split ring fig. 1108 ⅜ to ⅞ in. rod
Weldless eye nut fig. 290 ⅜ to 1½ in. rod
Forged steel clevis fig. 299 ⅜ to 1⅜ in. rod
Turnbuckle drop forged steel fig. 230 ⅜ to 1½ in. rod
Rod coupling fig. 136 ⅜ to ⅞ in. rod
Adj. swivel coupling fig. 134 ⅜ to ⅞ in. rod
Turnbuckle adjuster fig. 114
Rod coupling fig. 208 toggle bolt fig. 209 ⅜ to ⅞ in. rod


U-HANGERS
EXTENSION
CEILING PLATE
Standard U bolt fig. 137
Adj. wrought U pipe hanger fig. 252 ⅜ to ⅞ in. rod
Extension piece fig. 157 ⅜ to ⅞ in. rod
Spring Ceiling plate fig.133 ⅜ to ⅝ in. rod


ASSEMBLIES
Split ring with socket and coach screw
Split ring, socket and ceiling flange
Extension split ring hanger fig. 139
Adj. swivel ring with coach screw fig. 100
Adj. clip hanger fig. 106

Call your local Grinnell Distributor, or write for Hanger Catalog.

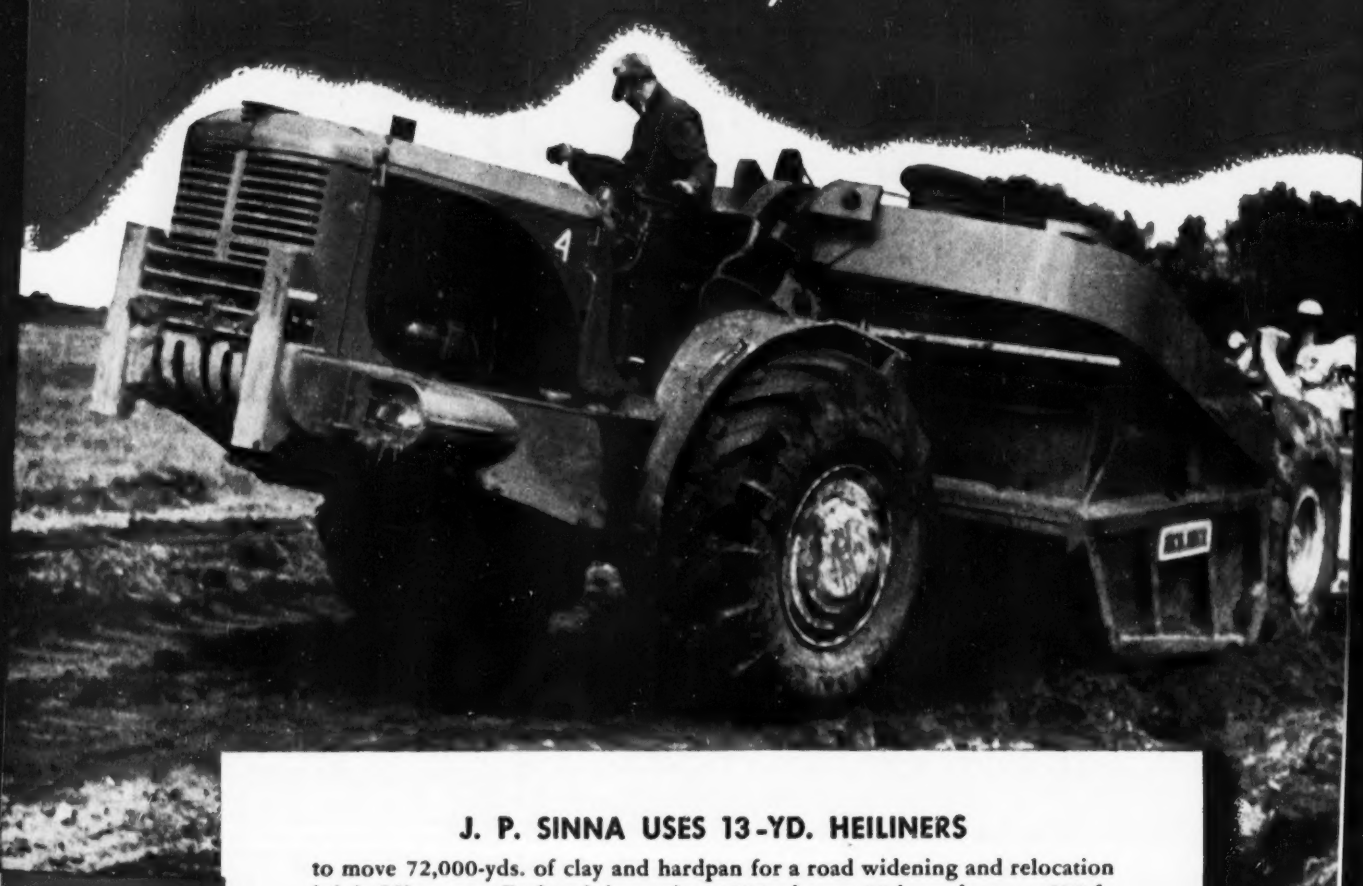
GRINNELL

AMERICA'S #1 SUPPLIER OF PIPE HANGERS AND SUPPORTS

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

Manufacturer of: pipe fittings • welding fittings • forged steel flanges • steel nipples • engineered pipe hangers and supports
Thermolier unit heaters • Grinnell-Saunders diaphragm valves • prefabricated piping • Grinnell automatic fire protection systems

HEILINER



J. P. SINNA USES 13-YD. HEILINERS

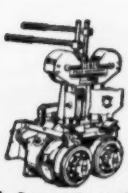
to move 72,000-yds. of clay and hardpan for a road widening and relocation job in Minnesota. Each unit is moving 1250-yds. per 10-hour day on a 500-ft. average haul. These 13-yd. 2C500 Heiliners are ideal for short haul work where high speed and maneuverability are essential, yet they have all the capacity, speed and power necessary for long haul jobs.

There's sure to be a popular Heiliner, either 13-yd. or 18-yd., on a job near your location. It will pay you to watch their performance on the job, get facts and figures from the men who own and operate them. Your nearest Heil distributor will gladly tell you where you can see Heiliners in action, and explain every feature which makes them first choice with so many contractors like J. P. Sinna.

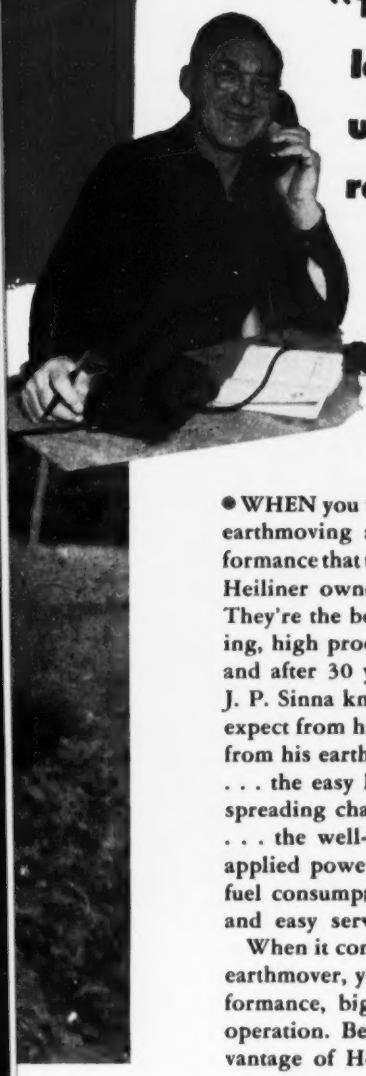
13 and 18-yd. Heiliner Scrapers

20-yd. Heiliner Bottom Dump Wagon

6, 9, 11 and 16-yd. Tractor Drawn Scrapers



Cable Power Control Units



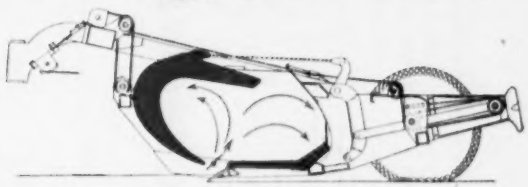
"The best balanced, easiest loading and lowest maintenance unit ever operated under my supervision during thirty years road experience"

says *J. P. Sinna* president

J. P. SINNA and SON
St. Paul, Minnesota

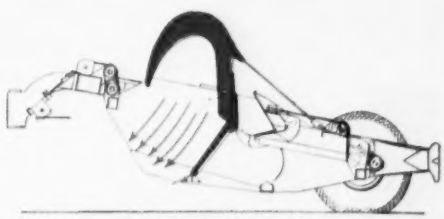
● WHEN you want the last word on low-cost earthmoving and the kind of scraper performance that trims cycle time to the bone, ask Heiliner owners like J. P. Sinna and Son. They're the boys who know an easy operating, high producing rig when they see one, and after 30 years of building good roads, J. P. Sinna knows to the last ounce what to expect from his equipment. What he expects from his earthmovers he *gets* from Heiliners . . . the easy loading, fast hauling and easy spreading characteristics that speed the job . . . the well-balanced design and *correctly* applied power which save horsepower and fuel consumption . . . the low maintenance and easy servicing that reduce downtime.

When it comes right down to choosing an earthmover, you choose on the basis of performance, big production and trouble-free operation. Be sure to investigate every advantage of Heiliners before you start your next contract.



FAST, EASY LOADING

The bowl of the Heiliner is designed to "boil" up a fountain of dirt in the *center* of the bowl, quickly heaping both back and front with evenly balanced pay load in a short digging distance. With Heil's planetary drive, the final reduction is in the drive wheels, where it provides a smooth application of lugging power from engine to tire for the greatest utilization of available horsepower. Heiliner's extra-large rim size permits greater ground contact area for better traction and flotation in soft going.



"TILTING FLOOR" FORCED EJECTION

This exclusive Heiliner feature is the simplest, most efficient type of positive forced ejection known. It assures ejection of the entire load with no leftover yardage . . . fast, smooth spreading with minimum horsepower requirements. The floor of the bowl is hinged behind the cutting edge and simply tilts up to a 75° angle by means of a positive ram action. After overcoming the slight initial static friction, the only pressure to be overcome is that exerted by the load on the sides of the bowl. With the ordinary square bowl, more horsepower is needed to overcome the tremendous pressure of tons of heavy dirt on the bottom of the bowl, as well as against the sides.

BALANCED POWER—BALANCED DESIGN

Skillful, balanced design of both tractor and scraper distributes weight properly and utilizes every possible mechanical advantage to apply maximum drawbar pull to the cutting edge. *Exactly* right power, correctly applied at the point of action, *utilizes* horsepower instead of wasting it. Spinning the drive wheels in the pit doesn't put dirt in the bowl! There's plenty of power in the big diesel engine to meet every job condition efficiently, with ample reserve to handle the toughest jobs.

R-6

THE HEIL CO.

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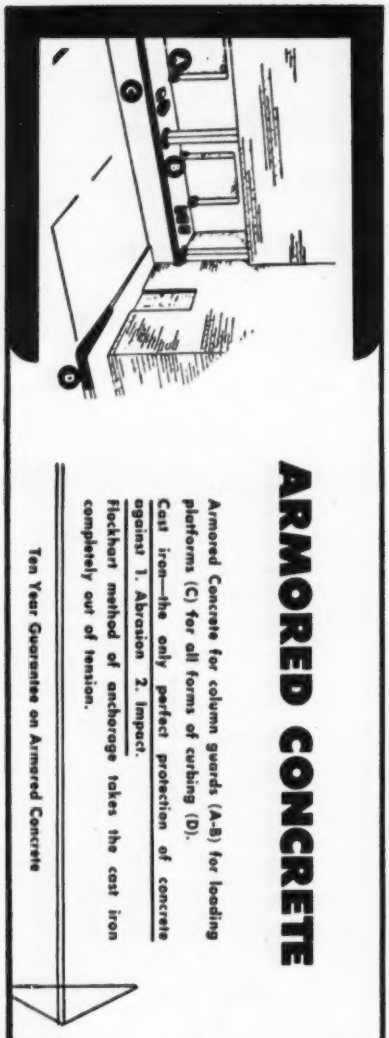
ARMORED CONCRETE
Armored Concrete for column guards (A-B) for loading platforms (C) for all forms of curbing (D).
Cast iron—the only perfect protection of concrete against 1. Abrasion 2. Impact.
Flockhart method of anchorage takes the cast iron completely out of tension.
Ten Year Guarantee on Armored Concrete
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READER COMMENT

Asphalt roads defended

SIR: I have read the advertisement of the Portland Cement Assn. on p. 40 of the April 9 issue of ENGINEERING NEWS-RECORD concerning the New Jersey Garden State Parkway and the New Jersey Turnpike.

The editorial from the PATERSON MORNING CALL that was reproduced in the advertisement of the Portland Cement Assn. states, in referring to the New Jersey Turnpike, "over 50 killed and hundreds injured in one year". Had the Portland Cement Assn. checked figures it might have found the percentage of accidents on the turnpike was less, when compared with the volume of travel, than on other types of construction.

The advertisement further states, "concrete pavement, being constructed with forms to precise alignment and true surface contour, requires a lower crown than any other type of road surface, which makes for maximum driver control". The difference in crown required between concrete road construction and bituminous road construction is so small, as far as motor-vehicle operation is concerned, as to make it almost unnoticeable. In fact, many motor vehicle operators prefer a crowned road as it helps for straight driving in that a slight pressure on the steering wheel, always in the same direction, reduces wandering.

The advertisement states, in referring to other than concrete construction, "Smoother surfaces turn into dangerous death traps for the high speed traveler". This statement is very misleading as the Portland Cement Assn. advertisement is not specific. It says, "other kinds of roadways". It does not say ALL other kinds of roadways.

The construction of a roadway with bituminous material with a surface that compares favorably with concrete as far as non-skidding is concerned is not difficult. We have many miles of bituminous surfaced roads in Union, N. J., that can be compared very favorably with concrete for non-skid qualities.

The only claim made by the advertisement that can not be argued against is that concrete roads reflect light better than darker road surfaces. This of course is better at night for pedestrians.

However, it would appear that the lights on motor vehicles would be more easily seen on a dark road. The white-painted lane line certainly is more easily seen on a black road than on concrete. This should reduce accidents by keeping vehicles in one lane rather than wandering over the entire roadway.

A distinct advantage a bituminous constructed road has over concrete is that ice does not form as quickly and both ice and snow melt sooner on the bituminous constructed road.

The Portland Cement Assn. advertisement suggests for safety on the Garden State Parkway, use concrete, latest safety devices and a 50-mph speed limit. It does not say concrete alone.

GEORGE KLING
Superintendent,
Dept. of Streets & Highways,
Township of Union, New Jersey.

USBR engineer misquoted

SIR: The following statement appears in your Associated General Contractors of America convention story (ENR April 2, p. 24):

"Mr. Bloodgood cited a USBR estimate that $1 million could have been saved in 1952 if contractors had procured materials that were furnished by the bureau."

At the Heavy Construction and Railroad Contractors' Division meeting I stated that the prices bid for furnishing and installing materials if considered separately were often misleading, as an independent analysis considering only these items tended to show that the Bureau of Reclamation had paid approximately $1 million more in 1952 than if it had purchased the materials, but that we realized the contractor had other considerations in mind when preparing his bid.

For several years it has been the policy of the Bureau of Reclamation to have contractors furnish and install materials and equipment except for specially designed equipment.

GRANT BLOODGOOD
Chief Construction Engineer
U. S. Bureau of Reclamation
Denver, Colo.

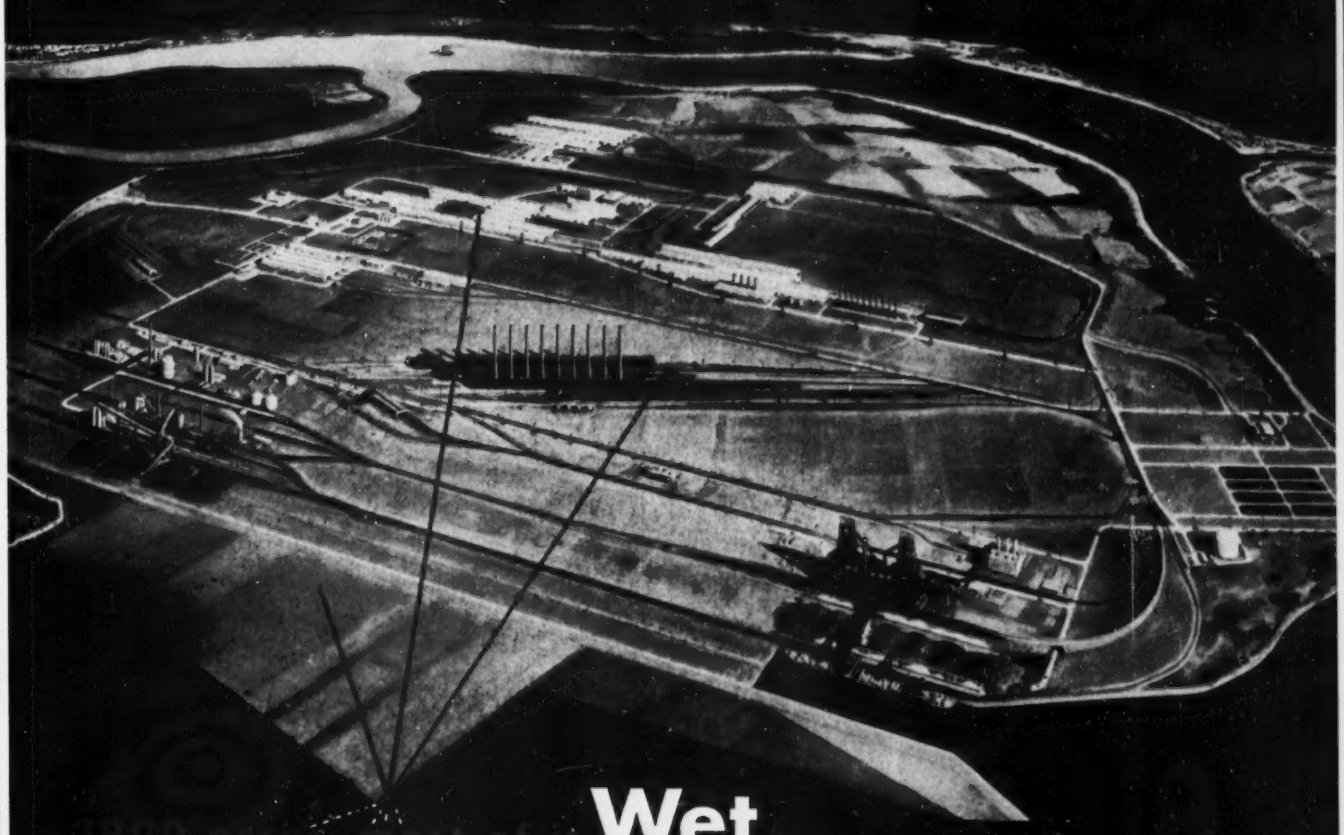
Evaporation corrections

SIR: We read with considerable interest "Study determines lake evaporation and tests new measurement methods" which appeared in ENGINEERING NEWS-RECORD Mar. 19, p 71. While we are very much obliged to you for the attention given to the Lake Hefner experiment, we regret that the article seems incorrect in some essential details.

As our press release and our tech-

(*Continued on page 15*)

Fairless Works on the Delaware River—
Foundation, Grading and Dredging Contractor:
Walsh-Perini-Graves-Slattery
Companies, Morrisville, Pa.



Wet

Pumping was Problem #1 when it came to turning the farmlands of Morrisville, Pa. into the Fairless Works for United States Steel Corporation.

Moretrench Wellpoint Systems—by the mile—expertly planned, expertly installed, soon had the water under control. Excavation for coke ovens, power plant, blast furnaces, slip areas and other foundations went ahead on the double—IN THE DRY!

Twenty months later this enormous steel plant began production—a magnificent testimonial to the teamwork of the construction industry. From brains to brawn, Moretrench salutes every member of that team!

oretrench Corporation

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Tampa 9, Florida

315 W. 25th St.
Houston 8, Texas

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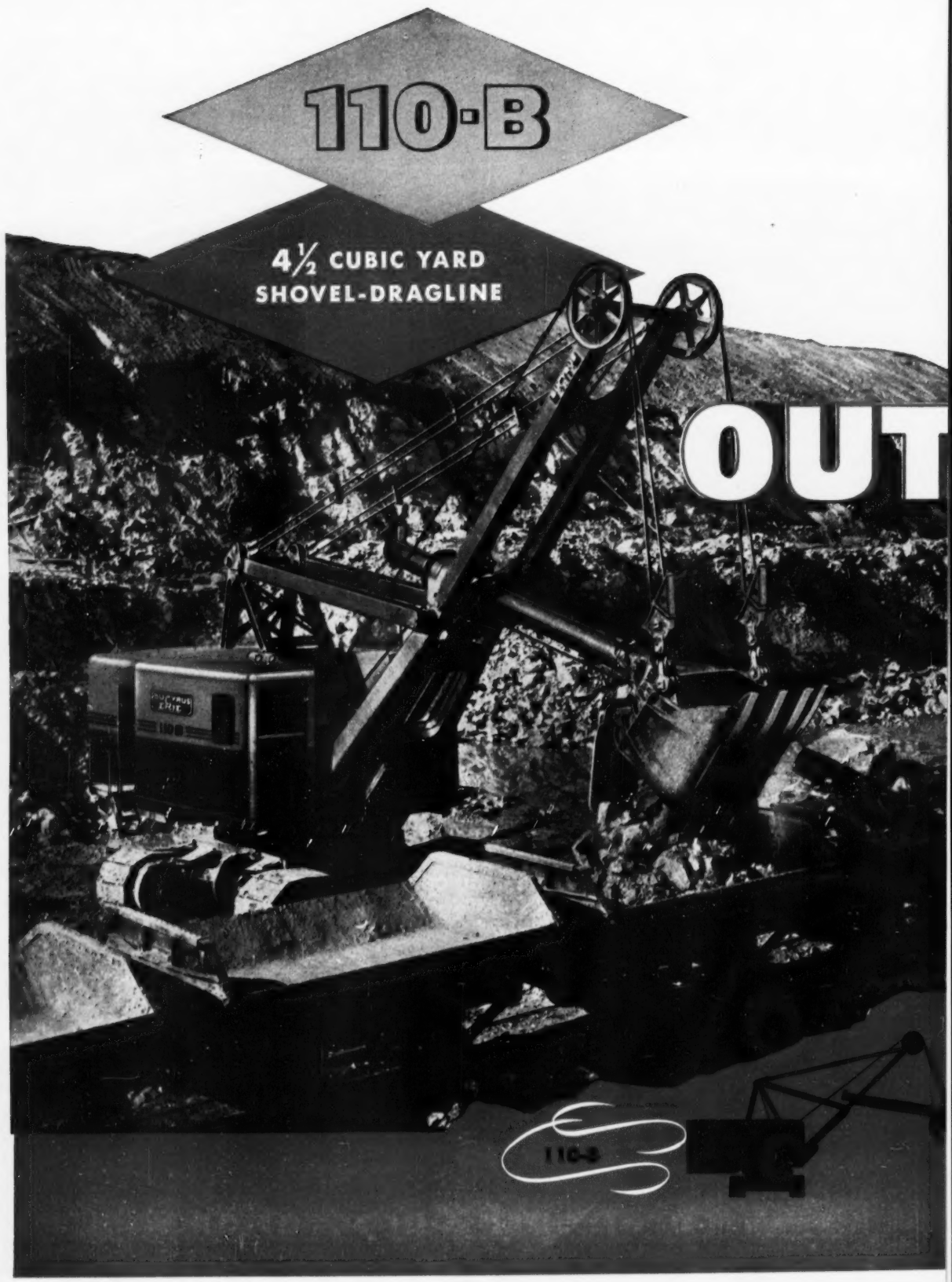
New Jersey

Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario


110-B
4½ CUBIC YARD
SHOVEL-DRAGLINE
OUT
110-B

another slugger in the PUT lineup

Now — taking its place in the outstanding line of Bucyrus-Erie heavy-duty quarry and mine excavators is the field-proved 4½-yard 110-B — a convertible shovel-dragline which can give you bigger output in rock, ore, or dirt at lower cost than any other machine of like capacity on the market today.

Like the larger 150-B (6-yard) and 190-B (8-yard) machines, the 110-B features Bucyrus-Erie's exclusive shovel front-end. The strong, light two-section boom reduces weight and speeds digging cycle, yet provides ample strength for tough digging. Tubular dipper handle, free to rotate in saddle block, permits digging with one corner of dipper without introducing torsional strains. Powerful effective rope crowd reduces swing inertia because crowd machinery is located on revolving frame. And, twin dual hoist ropes concentrate power where needed to pull dipper through toughest banks.

Before you buy any machine in the 4½-yard range, investigate the 110-B. It will give you consistently large output at lowest cost per yard. For detailed information, write today for Bulletin 110-B-1. 3153C

BUCYRUS ERIE

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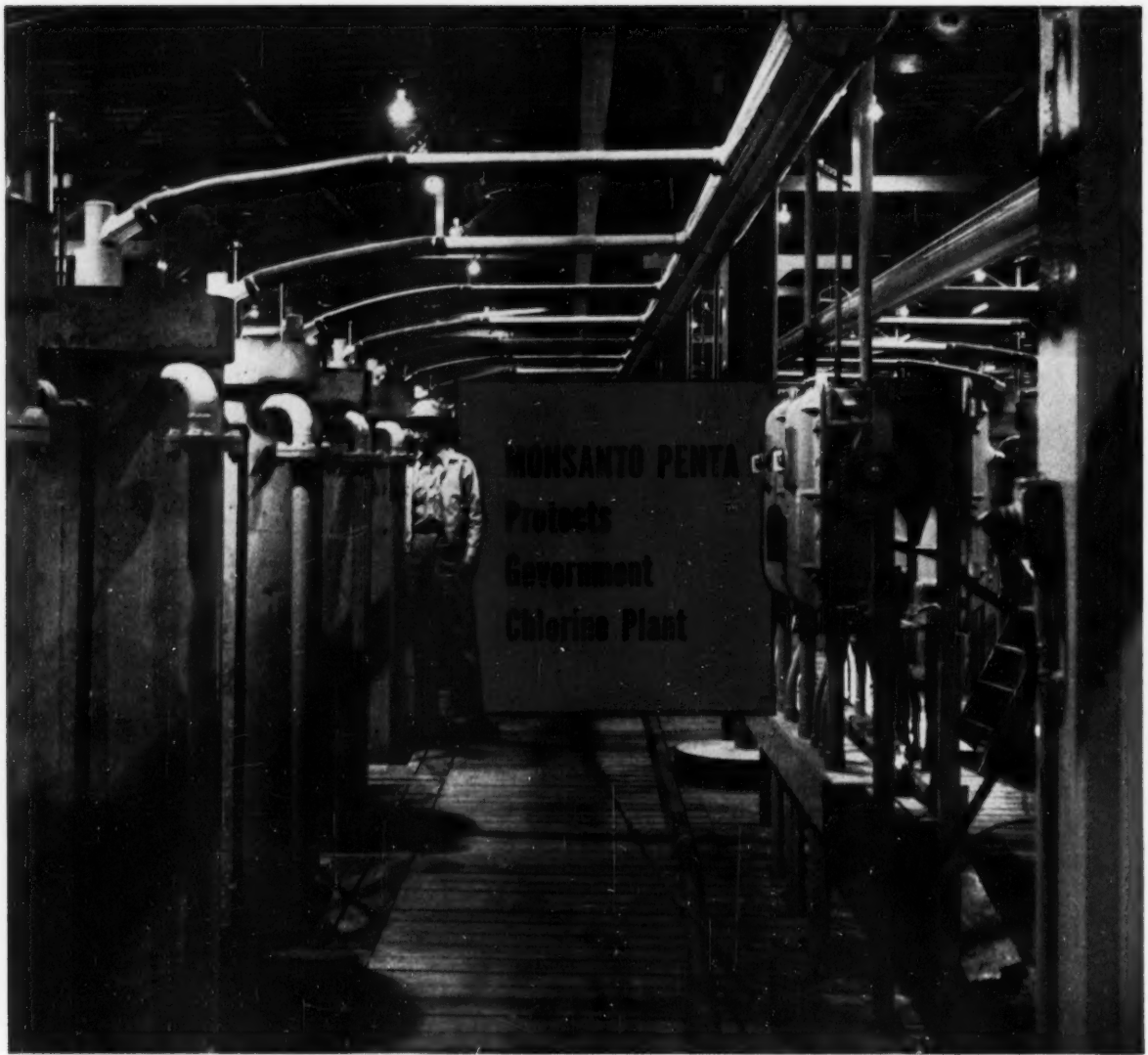
Another in the great modern line of Bucyrus-Erie quarry and mine excavators — yard for yard, dollar for dollar, pound for pound, the finest ever built.



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Equipment of The Campanella and Cardi Co. at work near Barnstable, Mass.

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The truck above weighs 15 tons. That's 35 tons, with payload, for those tires to carry over rough construction roads, up steep 15% grades. The tires can take this rugged work 9 hours a day, 6 days a week, because they are B. F. Goodrich Universals. Husky, wedge-shaped cleats resist rock cuts and bruises, give positive traction in either direction.

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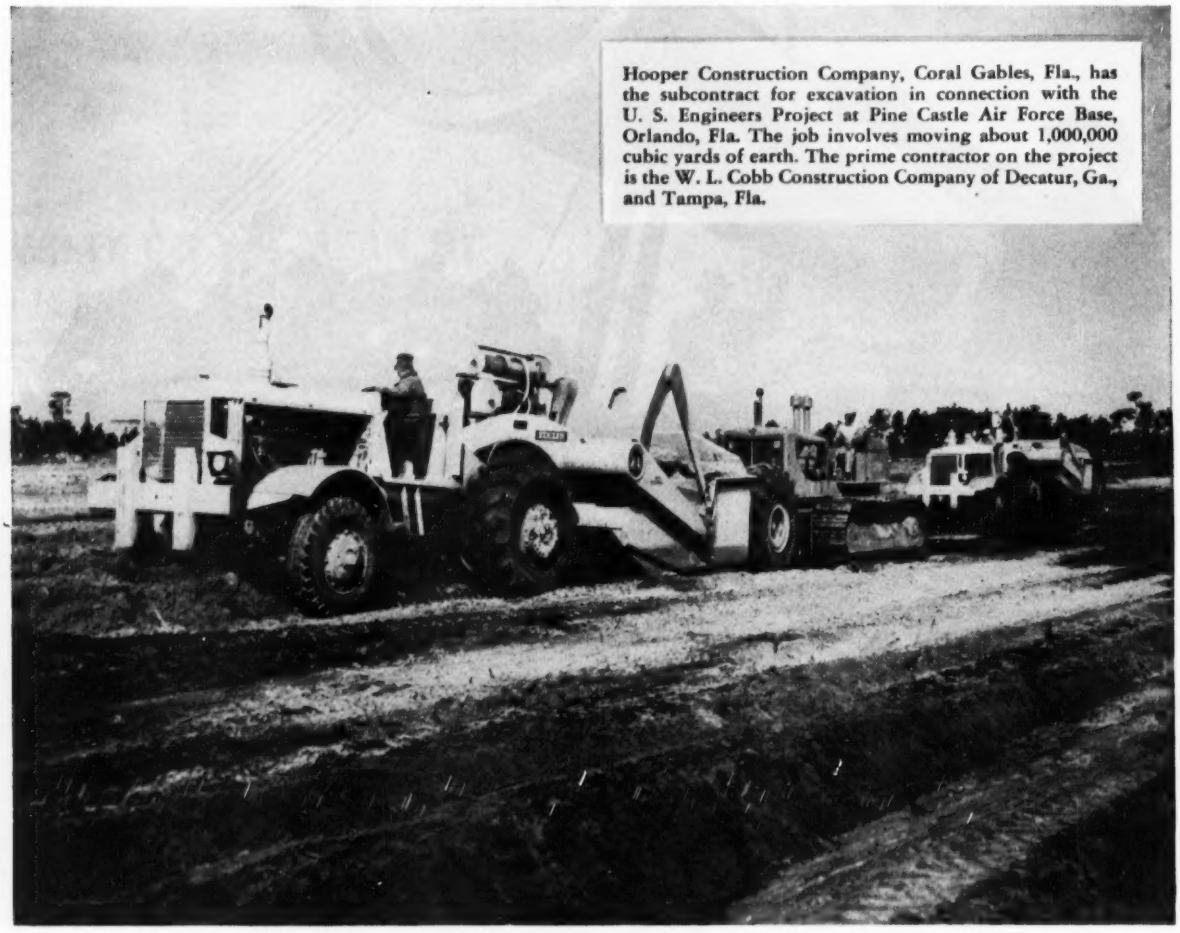

Hooper Construction Company, Coral Gables, Fla., has the subcontract for excavation in connection with the U. S. Engineers Project at Pine Castle Air Force Base, Orlando, Fla. The job involves moving about 1,000,000 cubic yards of earth. The prime contractor on the project is the W. L. Cobb Construction Company of Decatur, Ga., and Tampa, Fla.

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GULF

READER COMMENT

nical report definitely indicate, a careful water budget on the lake itself, accurately measuring inflow and outgo, served as the control. The statement that "it was found that 62% of the daily evaporation determinations from the pan method checked sufficiently accurately the estimates of evaporation by the mass-transfer and energy budget calculations" is specifically incorrect and is a misinterpretation of our press release. The figure of 62% refers to the proportion of the daily determinations of evaporation by water budget that were sufficiently accurate to afford a basis of daily comparisons with the other methods.

The statement as it is made in your article is entirely inconsistent with the finding that the pan-to-lake relationship had a pronounced seasonal variation. It was clearly pointed out in our technical report that pan coefficients applied to daily and monthly values were very erratic.

We feel that it is of controlling importance that pan observations not be confused with lake evaporation.

In addition, the Cummings radiation integrator did not "supplant" but instead, when tested, was found to be a satisfactory substitute for the expensive radiation equipment.

R. W. Davenport, Chief
Technical Coordination Branch
U. S. Geological Survey
Washington, D. C.

CALENDAR

National Fire Protection Assn., Palmer House, Chicago, May 18.

Engineering Institute of Canada, Dalhousie University, Halifax, N. S., May 20-22.

Annual Northwest Traffic Engineering Conference and Western section of Institute of Traffic Engineers, More Hall, University of Washington, Seattle, May 21-22.

Society of Fire Protection Engineers, Palmer House, Chicago, May 21.

Society for Experimental Stress Analysis, Hotel Schroeder, Milwaukee, Wis., May 20-22.

American Society of Civil Engineers, spring meeting, Casablanca Hotel, Miami Beach, Fla., June 15-19.

American Institute of Architects, Metropolitan Theater, Seattle, Wash., June 16-19.

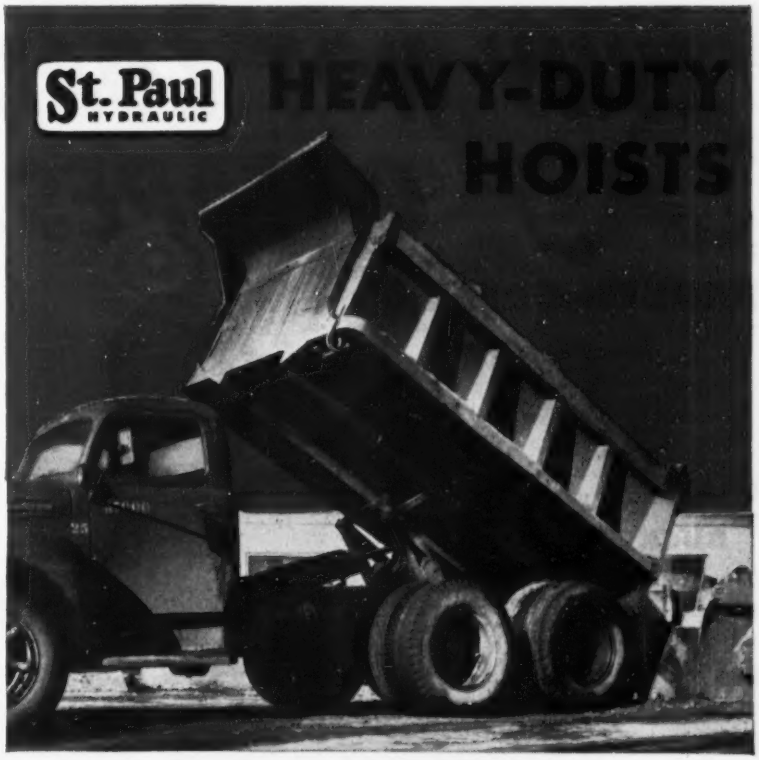
National Society of Professional Engineers, Sheraton Beach Hotel, Daytona Beach, Fla., June 18-20.

American Society for Engineering Education, annual meeting, University of Florida, Gainesville, June 22-26.

Conference on modern highways, Massachusetts Institute of Technology, Cambridge, Mass., June 23-25.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 28-July 3.

Summer program in Advanced Strength of Materials, M.I.T., Cambridge, Mass., July 6-17.



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10' to 16' body 2 L 24 16 to 27½-ton cap.	10'6" to 14' body HI-DUMP 3 to 8-yd. cap.

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Barber-Greene BG

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THE CONSTRUCTION WEEK

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- **Limited free offer**—As a step toward raising the national housing standard (and turning efforts of its members into a lucrative field) the National Association of Home Builders last week was prepared to make this offer:

  Emmanuel Spiegel, NAHB president, wants to pick a city, and then line up NAHB members to demonstrate slum rehabilitation through private enterprise.

  Details of how the program is to be worked out haven't been announced, but Spiegel told NAHB-ers at their recent meeting (see also p. 151) that such a program would get a much larger movement started.

- **Power opportunities**—Construction optimists see the Department of Interior's withdrawal from the dispute over who builds Hell's Canyon Dam on the Snake River on the Idaho-Oregon boundary as the tip-off to a flood of applications for new hydro works by private power companies.

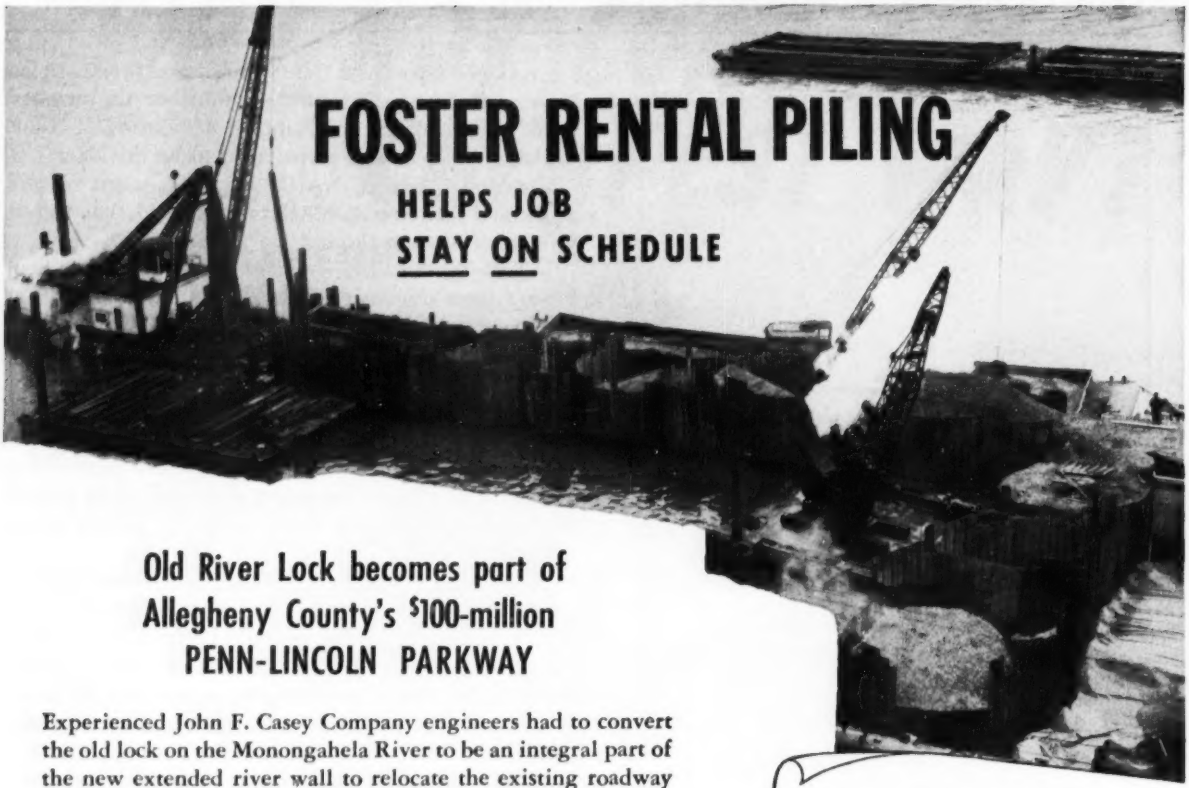
  That's probably true. But it's to be remembered that the federal government is still a long way from being out of the power picture. Federal Power Commission—charged with deciding on the "fullest and most comprehensive" development of hydro resources—still has broad authority to accept, reject or modify any license application that comes before it.

- **Home with the facts**—California's continuing efforts to buy the federally built Central Valley Project and thus gain politically popular control of its own waters, may have moved a step further towards realization after a set of Washington conferences.

  Governor Earl Warren got home this week from the capital, with members of the State Water Projects Authority. He seemed hopeful, outlined steps for the purchase after cautiously preceding his statement with an "if the state decides to buy" clause:

  (1) Legislation must be introduced into Congress to establish a formula under which the project could be sold; (2) an appropriation must be made to Interior to cover cost of negotiating a contract with the state; (3) Congress must make a decision on terms of the contract.

- **Approaching climax**—The Raritan River trunk sewer plot thickened in New Jersey this week as: (1) A consultants' report to the Somerset County Group was received, not released; (2) the Middlesex County organization had 14 of 21 eligible participants signed up for its $22.5-million project; (3) New Brunswick, the large city in Middlesex County, was the big question mark as it met with Somerset citizens for a look at what their consultants had brought in; (4) legislation to set up a regional authority reportedly was in the hopper at Trenton; (5) the State Health Department was still somewhere in the wings, but; (6) two new lead characters appeared as the Middlesex County Sewerage Authority named Abel Wolman and Floyd Mohlman to join E. Sherman Chase to make up a board of engineering advisors.



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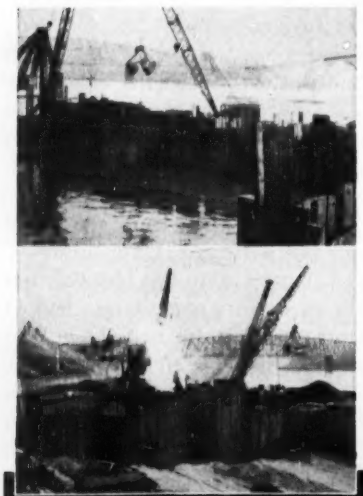

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WASHINGTON OBSERVER

Big cuts on military construction for fiscal 1954 are indicated in the new Eisenhower-Wilson budget totals just sent to Congress. A detailed breakdown isn't available, but overall figures reveal the Administration's hopes to make its biggest savings in construction spending.

The proposed budget would be cut back to $1.3 billion for the year beginning June 30. That would be down from fiscal '53's total spending of about $2 billion for military public works. In contrast, Truman would have increased military outlays in fiscal '54 to $2.7 billion.

Cutting construction spending by $700 million next year will be tough. The experts feel that such a reduction—almost one-third below this year—could be accomplished only by stopping all new starts, and by canceling some projects already under way.

•

The review of all construction projects begun in January—the freeze and thaw—doesn't jibe so far with any such sizable cuts in military building next year. Some $4 billion of proposed future Defense Department construction is being checked to discover, "Is this spending necessary?"

But so far best official guesstimate is that only $400 million can be saved. And only about $150 million of this, say, would result in reduced spending next year. This is a long way from the $700 million called for.

•

Outlook right now is for the Defense Department to shift some of its cuts to other spending areas. But even so, there's going to be a lot of fighting in Congress over bringing the Republican budget into line. Military cuts—including those on construction—are among those that will be fought the hardest.

Threat to stop the Portsmouth, Ohio, atomic construction is growing in the House Appropriations Committee. The money has already been appropriated—$1.22 billion—but some economy-minded congressmen want to stop the job. They figure they can salvage upwards of $1 billion by doing so (construction started late last year). Eisenhower is against this stop order—but the congressional move being made in that general direction will be major one, with Senate as well as House backing.

•

Federal building of Hell's Canyon Dam is far from dead, despite Secretary McKay's statement last week. Democrats will make a party issue of the Administration's position that Idaho Power Co.'s Oxbow Plan prevail in developing Snake River. Some Republicans aren't sure they want to go along with McKay. Senator Morse threatens Idaho power would be in the courts "a long, long time" before any dirt is turned on Snake River (See p. 17).

Hell's Canyon does not affect Administration support of the St. Lawrence Seaway. Eisenhower is for it, and anti-seaway forces are now laying their strategy to defeat approval. One charge: that okaying of federal building of a seaway is a compromise for the Oxbow decision.

•

Contractor dissatisfaction with the Davis-Bacon Law is heightened by the latest maneuver of Labor Secretary Durkin. He has shifted control for setting wages on government construction to Undersecretary Mashburn, once an AFL Building Trades official. Previously the Labor Dept. solicitor had the chore, but Durkin wants control to stay in hands friendly to the AFL.

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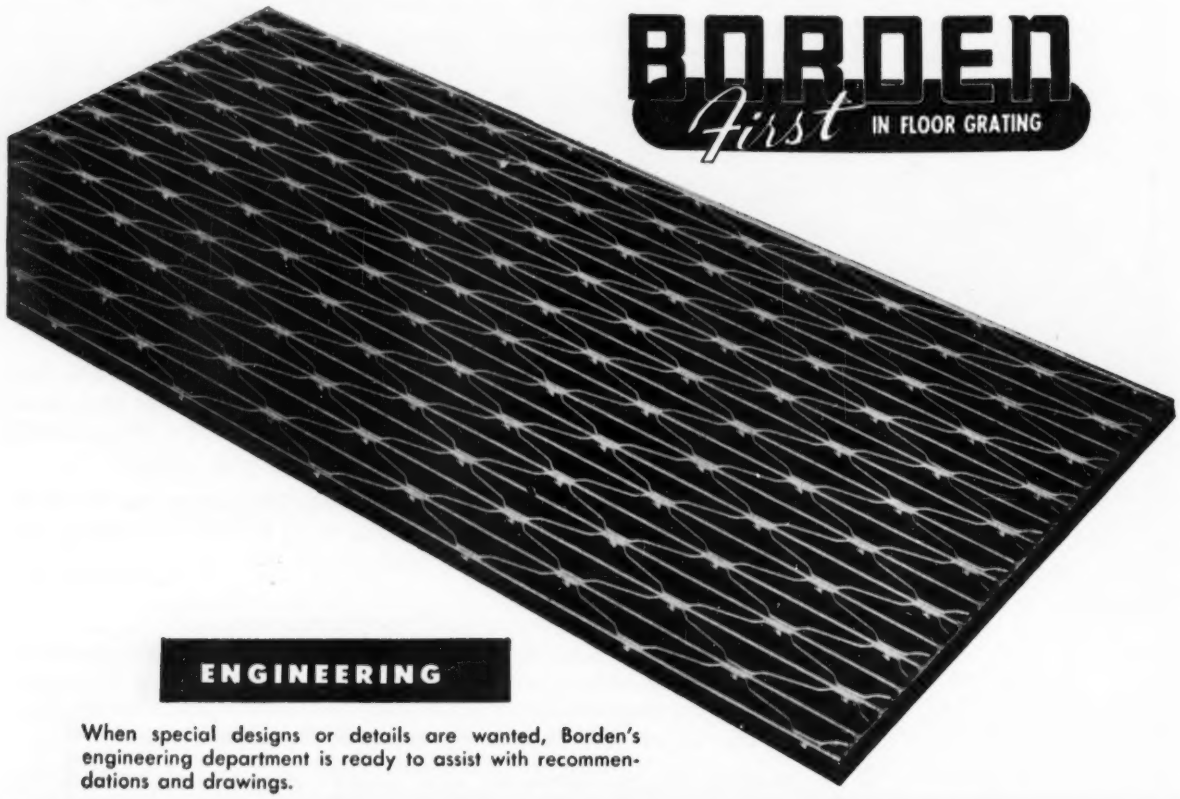

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Home builders welcome moves to improve mortgage market

Hopes are pinned on lower FHA down payments to bolster lagging sales; housing awards still record high

ENR staff report

Surveys of home building activity indicate that steps to improve the FHA and VA mortgage market have come at an opportune time. Too-low interest rates and too-high down payments have been making it tough for builders to make sales.

The hike in VA and FHA interest rates is already taken care of (ENR May 7, p. 21). And, last week the Administration indicated that it's sold on the need for reducing down payments on houses financed with FHA-insured mortgage loans.

Easing mortgage restrictions seems to be the final step toward assuring a banner year in home building. For, all other factors point that way. Both contract awards and project proposals for the first quarter are at an all-time high.

• **Builders make cautious start**—Uncertainty over the mortgage market appears to have put the brake on starts, at least during the first quarter. For example, a spot-check ENR survey, covering 44 builders in 38 scattered cities whose planned 1953 starts totaled 7,000, listed 2,600 starts compared with 2,364 sales in the first quarter.

The slim margin of starts over sales indicates a cautious approach to this year's program on the part of these 44 builders, 60% of whom reported housing more difficult to sell than last year while 23% saw little change.

Much the same story came from the National Retail Lumber Dealers Association, whose directors held their annual meeting in Washington last week. A poll of 148 leading dealers who do business through 238 areas showed 43% reporting more unsold houses in their areas than last year and 45% indicating no change.

• **Down payments responsible**—Most forceful indictment of present down payment requirements on FHA-insured mortgage loans came from the National Association of Home Builders. Drawing its conclusion from reports by 1,600 builders in 46 states, the NAHB declared that down payments are stopping 60% of the families who want to buy homes today.

Right now, an FHA-insured loan can cover 80% of the value of a house costing up to $20,000. The down payment amounts to $2,400 on a $12,000 home and $3,000 on a $15,000 property.

NAHB wants Congress to allow mortgage insurance on 95% of the first $8,000 of value, plus 80% of the next $7,000, and 60% of the next $5,000. For valuations of $20,000 to $25,000, the association asks a straight 80% mortgage.

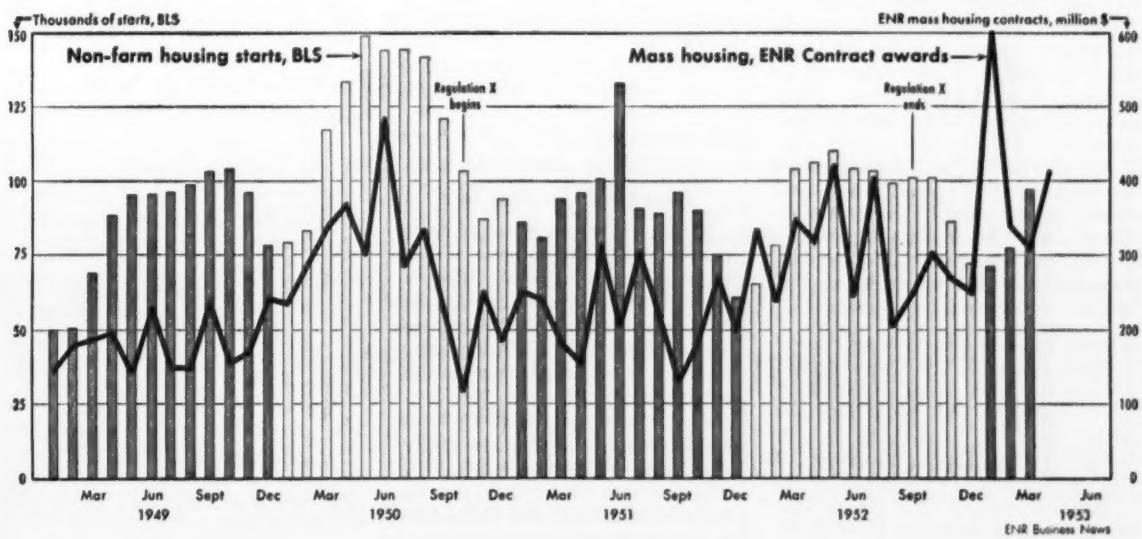
This new pattern, if Congress were to adopt it, would cut the down payment to $1,200 on a $12,000 house and $1,800 on a $15,000 purchase.

• **Chances of revision good**—A confident prediction that Congress would enact legislation to make home buying easier was voiced at the Washington conference of the lumber dealers by Albert M. Cole, the new head of the Housing and Home Finance Agency.

In fact, he indicated that his agency and Congress are thinking along the same lines as the NAHB. He told the convention that housing legislation to be offered by the Administration this year would be limited to changes in FHA's mortgage terms. And, next year's program will deal with reorganization of FHA.

Cole described this year's proposals as non-controversial and said they would be enacted. His confidence strongly implied an understanding with leaders on Capitol Hill, especially with the Senate and House Banking Committees.

Biggest block in the way is the the Administration's anti-inflationary policy. Financial bigwigs with White House backing might possibly per-



suade Cole and the congressional committees to go slow in easing mortgage credit.

• **Plans hold firm**—There's plenty of evidence that demand for new homes is solid and that confidence in this being another boom year is warranted.

Even among the group of 44 builders polled in ENR's spot-check survey, 55% reported they expected to start as many units in '53 as they planned back in October, and a few aimed to start more. This was the group in which 60% reported housing more difficult to sell this year.

The survey of lumber dealers, which also emphasized the tougher selling conditions for builders, showed 31% forecasting business as "good" for the rest of the year and 62% seeing the outlook as "fair."

• **Contract awards up**—Most striking evidence that a banner year is in the making can be found in ENR reports on mass housing contract awards. In the first 19 weeks of this year, they totaled $1.5 billion—41% higher than for the similar period of last year.

Also running at an all-time high are mass housing projects proposed in the first four months of this year. They are estimated at $707 million—7% over the dollar volume for the corresponding period last year and 6% over the cost of projects proposed in that period of the record 1950.

While contracts are up, housing starts as reported by the Bureau of Labor Statistics were about the same as for the similar period a year ago—245,000 units. (The two factors cannot be equated accurately, however. ENR is reporting contract awards of $300,000 or more for all homes in a new development, while BLS covers all units built one or two at a time or in large developments. Contracts represent work which will be put into place over several months—in some cases carrying over into next year or longer. Finally, contracts reflect prices, whereas starts measure physical units.)

Although indications are that starts are lagging, the picture may well change when April figures are in. There should be an upswing as projects now under contract go into construction. As the chart shows, this was the pattern in '52.

• **Some price raising**—Among the 44 builders contacted in ENR's survey, a third reported raising prices since last October. The price increases ranged from 1% to as much as 12% but the majority reported increases of 5% or less, and, 14% of this group of builders lowered their prices since last October by from 2% to 15%.

Alternate bid fight

Society defends judgment of professional engineers in Ohio Turnpike case

Added significance was given to the asphalt vs. concrete court fight that has stymied work on Ohio's $326-million turnpike when the Ohio Society of Professional Engineers entered the controversy last week.

The society filed a brief with the Ohio Supreme Court, asking reversal of an appellate court decision requiring alternate bidding on the ground that it nullifies the judgment of professional engineers.

"If the decision of the court of appeals is sustained," the engineers' group contended, "it will mean that all public works projects wherein alternate bids were not required will be subject to attack regardless of the recommendations of professional engineers."

The society took the position that the Turnpike Commission, in the absence of a specific statutory provision to the contrary, had broad discretionary power to select the type of pavement to be laid and that this selection can be made before as well as after bids are taken.

The brief further held that while the commission was permitted to require biddings on alternate types of material it was not required to take bids on both. Finally, it contended that "when the commission decided on one type of material, it was relying upon the judgment of its professional engineers in precisely the same manner that similar administrative officials of all political subdivisions in the state have accepted by custom, usage and necessity from time immemorial."

Meantime, uncertainty over how the turnpike issue might effect other projects continued to mount. Joseph W. Crowley, Cleveland law director, in a brief filed with the State Supreme Court, contended that as of this moment millions of dollars worth of public works projects are jeopardized by the appeals court decision. "The validity of each and every one of these lettings is in doubt," he declared.

Establishment of such a rule of law, Crowley contended, "will permit and encourage competing material suppliers to effect and control the judgment of public officials." He added that if the appellate court decision is upheld "every municipal building project will have to be revised."

New ideas for untangling the legal snarl so that contractors can get on with the job come up daily. Among last week's proposals was this one from State Senator Carl D. Shepphard, chairman of the Senate Judiciary Committee: amend the turnpike law to permit the turnpike commission to use any paving material it selects.

Michigan senate ok's Mackinac bridge bill

A bill providing for an annual appropriation of $417,000 to defray maintenance and operating costs of the proposed Straits of Mackinac bridge has been passed by the Michigan state senate (ENR May 7, p. 26). And, prospects of House approval were considered good.

The measure was amended prior to Senate passage to make the annual appropriation contingent on the $100-million revenue bond issue for the project being sold by the end of this year.

Reclamation engineers face personnel cut

Cuts in Bureau of Reclamation personnel—called for in the Interior Appropriation Bill passed by the House—are bound to hit engineers on the bureau payroll.

Should the Senate go along with the drastic reduction in funds for personnel, the bureau will have to drop at least 1,000 of its 13,000 employees by June 30. The Interior Department already has ordered the bureau to initiate such a reduction. Notices are being prepared for the employees whose jobs would be eliminated.

Including surveyors, inspectors and other technical persons, the bureau probably has 8,000 employees in its engineering personnel. A cut of 1,000 employees cannot be made without affecting some of these engineering jobs. The reduction is likely to terminate employment for 400 or 500 who are doing professional or semi-professional engineering work.

Ontario Hydro to build pumped-storage plant

Construction of a storage reservoir and pumping plant in connection with its new power development at Niagara Falls has been announced by the Hydro-Electric Power Commission of Ontario.

By pumping water into this reservoir during the night, the commission will be able to add 225,000 hp to the output of its Niagara system at peak load with the pumps as generators.

Robert H. Saunders, chairman of the commission, says the new undertaking is part of a $5-million expansion of the Sir Adam Beck-Niagara Generating Station No. 2 (ENR Sept. 6, 1951, p. 39).

Industrial waste treatment progress reviewed at annual Purdue conference

Plant organization to care for pollution control, flotation and spray irrigation is among subjects discussed

Industrial waste treatment is just in the beginning of efforts that must be made to protect the nation's surface waters against pollution, said K. S. Watson in keynoting the eighth annual Purdue Industrial Wastes Conference last week.

About 400 representatives of industries, regulatory agencies and universities participated in a highly diversified program including informal symposia on the subjects of dairy waste disposal, flotation, radioactive waste removal and spray irrigation.

Watson, coordinator of waste treatment for the General Electric Co., stressed the advisability of each industry having someone in complete control over process water from the plant's intake to its outfall, including the handling within the plant.

He called for a better evaluation of stream conditions on the basis of the end use of the water course. There is need for improved biological techniques by which effects of waste discharge can be more quickly and accurately measured.

• **Float vs. sink**—In a discussion of the methods and merits of flotation, A. A. Kalinske of Infilco, Inc., described the advantages of shorter retention and more concentrated sludge that flotation gives over sedimentation. However, he conceded that both processes have certain advantages, which make it advisable to study each method before making a choice.

R. A. Baum, executive vice-president of Bulkley Dunton Processes, Inc., showed that flotation can produce an effluent with a dissolved oxygen content of 11 to 12 ppm while sedimentation often results in anaerobic effluents. He said that it was possible to remove 65% of the suspended solids and 49% of the BOD of raw sewage and as much as 97% of the solids in certain paper wastes by flotation.

• **Waste-made jungle**—J. M. Seabrook of Seabrook Farms Co. described the man-made jungle in southern New Jersey where cannery wastes are disposed of by spray irrigation. At a capital cost of $125,000, facilities have been provided for handling as much as 9 mgd of wastes. Average water dosage to the land of 8 inches per day has resulted in a phenomenon that has attracted ecologists, geologists and climatologists. Many factors from the rodent population and cactus growth to the BOD removal are now being studied.

Polluted water filtering through the soil is completely potable at a depth of only one foot and probably so at a depth of four inches, reported Seabrook. He said the ability of the soil to absorb the water increased every year as long as the earth was not disturbed. This same fact was reported by H. G. Monson of the Green Giant Co. in describing his company's waste disposal facilities throughout the midwest.

• **Control by committee**—In a paper on administration of pollution control, G. A. Collins, supervisor of operations at the Texas Company refinery in Lawrenceville, Ill., described the organization for studying the waste pollution problem at his plant. Six members from the top plant management and six foremen of unit operational crews comprise a pollution prevention committee, which has set up a program of personnel education, plant effluent analysis and receiving water analysis.

From this same committee comes advice to the Oil Industry Action Committee of the Ohio River Valley Water Sanitation Commission and recommendations to management for better plant operation and more efficient waste prevention.

C. M. Tarzwell, chief of the biology section of U. S. Public Health Service's Environmental Health Center at Cincinnati, told of some of the inadequacies in the methods of evaluating effects on streams of waste discharges.

He also called for a combined bio-assay and chemical analysis of the receiving stream to determine the many and complex interactions that take place when various types of wastes are discharged.

Interior chooses to remain neutral in Hell's Canyon project controversy

First significant indication of the new Administration's position on development of the nation's hydroelectric resources came last week with Interior Secretary Douglas McKay's decision to adopt a hands-off policy on the controversial Hell's Canyon project.

This meant withdrawal of the Interior Department's long-standing opposition to the Idaho Power Co.'s plan for developing the Snake River as an alternative to the federal government's proposed $357-million Hell's Canyon dam and power project.

Thus, it is up to the Federal Power Commission to decide the case on its merits. The Interior Secretary will simply present the Hell's Canyon plan to the FPC for consideration along with the utility company's scheme, without pressuring the FPC to support the federal plan as was done under the previous administration.

McKay's action improves chances of the Idaho Power Co.'s Oxbow plan, but FPC has ample authority to rule it out if it does not measure up to federal Hell's Canyon plan.

Hearings are scheduled to begin July 7 in Washington on the Idaho Power application for FPC approval to start construction of the Oxbow project.

This is the first of three power dams that the company proposes as an alternative to the federal Hell's Canyon high-dam plan.

Total estimated cost of the three low dams and power plants is $130 million, compared with the $357 million requested for Hell's Canyon. Installed capacity of the three-dam company proposal would be 783,000 kw compared with approximately 900,000 kw in the federal project.

So far as flood control and navigation are concerned, Interior Department says there is not much difference between the two proposals.

If the three company dams were built concurrently, it is estimated they could be producing power seven to eight years ahead of the larger federal project.

In order to make up for such an initial loss of power, Interior says the proposed federal project would have to operate more than 25 years. This delayed production would not help the power supply problem now plaguing the Pacific Northwest.

There is speculation that if and when FPC does issue a license to the power company, it may require a modification of the application to provide for constructing the three dams concurrently. It may also require inclusion of transmission facilities to get the power to Pacific Northwest power pool.

Photo by Gerald Waller

DESIGNER: Ellwyn King, 32, has won Lincoln Electric welding design award, is now a West Coast bridge designer.

ENR photo by Compton

EXECUTIVE: Vernon Smoots, 30, New York resident partner for the West Coast soils-consulting firm, Dames & Moore.

The younger generation of engineers: Quality partly offsets a shortage

But ENR survey raises question whether profession is getting maximum utilization from newcomers

Does the quality of the younger generation of civil engineers in any way compensate for the fact that there aren't enough of them to meet current demand?

ENR was induced to look into this question as a result of receiving frequent reports on the accomplishments of young engineers across the country amid a growing concern over the shortage of engineering school graduates.

Taking the 25 to 35-year-old engineer as representing the coming generation, here is what the ENR survey of evidence and opinion reveals about him:

- He is generally mature beyond his years—having been exposed to the broadening and deepening influences of World War II.
- He is more professionally minded than he was a generation ago, as evidenced by growth of society memberships and registration rolls of licensed professionals.
- He is more broadly, if not better educated, and is more apt to have done graduate work.
- He is proving himself worthy of fuller utilization as shown by many instances of early promotion into positions of responsibility.
- But, there also are indications that his capacities aren't being fully utilized.

• Utilization problem—"We are expecting more, and probably getting more out of our present-day engineering graduates than we did 10 or 20 years ago," says one prominent engineer-educator.

"But, we are not getting all there is to be had out of the material at hand," claims another observer. "A great many of these younger fellows who show promise are now simply employees."

The engineering profession frequently has agitated for better utilization of young engineering talent in the armed forces. And now professional organizations are showing more interest in the problem in respect to civilian employment.

A prominent engineering employment specialist reports there are now five technicians for every engineer, an exact reversal of the ratio existing not too many years ago. But, use of technicians in sub-professional jobs is not yet as widespread in the construction industry and in civil engineering as in other branches of engineering.

• Confident and articulate—In the minds of his older contemporaries in the profession, two basic qualities in particular characterize the young engineer. He's confident; he's articulate. Most agree that he reflects the influence of America's changed role in world affairs—that his participation in the global conflict and frequently in postwar foreign undertakings have broadened his outlook.

"His experience in World War II might be likened to that of the 30-year-old in 1924-26; but it is not the same, for the tempo was far greater in the second war than in the first," says F. W. Stubbs, chairman of the Civil Engineering Division of the American Society for Engineering Education.

• Impact on profession—This generation is having a profound effect upon the profession as evidenced in the professional societies. It is apparently a generation of joiners. And, once joined, many of its members are doers.

ASCE membership has increased from just over 20,000 at the end of World War II to 36,072 last month. The proportion of Junior Members has multiplied in this postwar period from 30% to almost 50% (Junior Membership goes to age 32 or 35 in the case of those who were juniors before the society's constitution was changed in 1950).

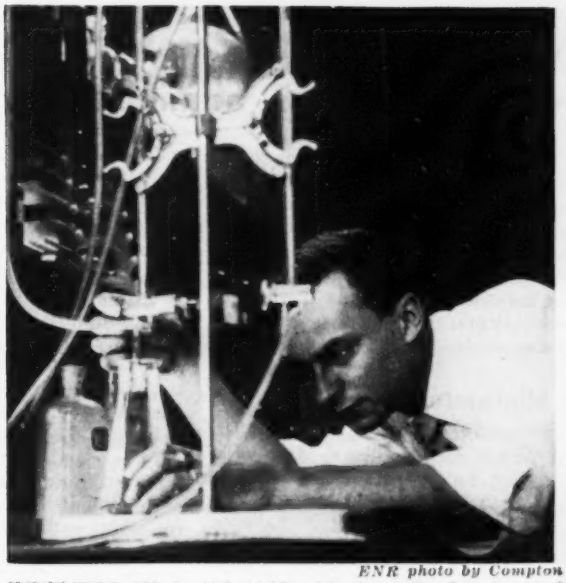
A membership composed half of juniors has had many of the desirable effects that new blood can bring to an organization. At the same time, it has brought some financial headaches. A Junior Member actually is charged less in dues on the average than it costs ASCE to service him annually.

There's plenty of evidence that Junior Members are making their way in ASCE. They are serving on committees in most local sections and on some local boards of direction.

Active junior branches or forums ex-

Photo by Sol Studna

CONSTRUCTION: Gerald Engelhardt, 27, field engineer for Kansas City Bridge Co. on major jobs.



ENR photo by Compton

INVENTOR: Wesley Eckenfelder, 26, who with others invented biosorption process for sewage treatment.

ist in several of the larger local sections including those in Los Angeles, San Francisco, Sacramento, Kansas City, Pittsburgh, Birmingham, Washington, Philadelphia and New York.

New York's metropolitan section juniors are the largest single group (about 1,400 of the section's 3,400 assigned members). And they may be the most active. This group will wind up 1953 with recorded participation of about 600—nearly half its geographically scattered assigned membership.

A major activity of ASCE's junior groups is missionary work in the colleges—a vital factor in the society's growth rate. Says Richard C. Gerke, president of the Los Angeles Junior Forum: "We work closely with the student chapters . . . so that the Forum will enjoy a good supply of incoming talent." And S. J. Lorenzi, in Pittsburgh reports, "we plan to hold two of our meetings at the local colleges."

• **Professional registration**—The National Society of Professional Engineers (estimated to be 45% civils) had 14,000 members in 1946; it now has 24,800.

The figure for total registered engineers, meanwhile, has grown from 80,000 to 176,500 in the same period. An estimated 20,000 of them are below the age of 36. But when you add the 35,650 who were engineers-in-training in 1952, you get an impression of the rate at which younger men are becoming licensed. The average age of professional engineers is getting lower, and an increasing proportion of engineers in the 25- to 35-year range is becoming registered.

The engineer-in-training arrangement generally permits young men to essay the first steps toward registration immediately upon graduation from college. The final step awaits completion of some years' experience—generally four. With all but 17 states now having some type of engineer-in-training arrangement, the number of registered professionals under 35 years of age can't help growing.

• **Education**—The consensus of engineer-educators contacted in this survey is that today's young engineer is better educated. Formal schooling itself may not be as advanced as in former years within the four-year curriculum, but it is in some ways more intensive—more work in analysis and design, less in detailing, "especially the driving of rivets by the hundreds with an ink drop bow pen."

More young people are taking graduate courses today than ever before—thanks in part to the GI bill and other government programs and much work formerly found only in graduate courses is now found at the undergraduate level, partly because of increased availability of improved laboratories in the colleges.

The fact that less than 10% of its civil engineer graduates leave engineering is offered by Kansas University as a testimony to the quality of its undergraduate course. It attributes this to increased emphasis on basic fundamentals rather than specialization, plus more training in those subjects dealing with the humanities.

Generally speaking, in this industry experience remains a major factor in advancement—and experience still takes years to accumulate. Still, the field does have its share of "bright young men."

Space doesn't permit a long enough list of them to be representative. Those listed in the box (at left) are only a very few taken at random.

Going Places

LeRoy Crandall, 34, resident partner in Los Angeles for the consulting firm of Dames and Moore.

Robert Zack, 27, assistant executive secretary of the Associated General Contractors of Iowa.

Irvan G. Mendenhall, 30, partner and structural engineer with Daniel, Mann, Johnson and Mendenhall, Los Angeles consultants.

Jean Muller, 28, with the Freyssinet Co. in New York, who did design work on the unusual prestressed arch bridge on the Caracas-LaGuaira Highway in Venezuela.

Robert K. Boyd, 37, project manager for Guy F. Atkinson Co. on current Pasadena, Calif., job.

William J. Bauer, 30, now with Harza Engineering Co., Chicago, and recently a hydraulic researcher for his doctorate at Iowa State University.

John F. Molloy, 31, president of ASCE's metropolitan section junior branch and recently made project engineer for Hardesty & Hanover on their portion of the Garden State Parkway design, N. J.

Minnesota, North Carolina reshape highway policies, administration

A basic reshaping of highway policy and administration highlighted the recently adjourned state legislative sessions of Minnesota and North Carolina.

Following is a thumbnail sketch of the major actions taken in the field of public works by the two legislative bodies:

• Minnesota

Minnesota will re-evaluate the basis on which state funds are now being allocated for support of its primary and secondary road systems.

A bill authorizing the highway financing study was one of 54 measures affecting the state highway department to be adopted.

The study will be conducted by a committee, composed of seven state senators, seven representatives and seven appointees of the governor. The committee was given a $60,000 appropriation for the survey.

Legislators from rural areas had tried in three previous sessions to get legislation allocating a greater share of state gas and auto taxes for secondary roads. The survey is aimed primarily at studying this matter. A special session of the state legislature may be called next year to consider the findings of the interim study group.

Another measure passed at this session permits the state highway commissioner to hire consulting engineers to help with the backlog of 12 state bridges yet to be designed. This represents a $20-million construction program. The bill limits the hiring of the consultants to a two-year period.

A seven-member interim commission was created to confer with a similar Wisconsin body on a proposal to build another bridge between Duluth, Minn., and Superior, Wis.

The legislature voted a $10.3-million state building program, consisting chiefly of hospital and educational facilities.

Flood control problems were made the subject of legislative inquiry, an interim committee was appointed to prepare a survey for consideration at the 1955 session.

• North Carolina

The North Carolina legislature provided for a redistricting of the state's 10 highway districts, permitting creation of up to five more. The present 10-member state highway commission will have its membership increased accordingly.

In another re-organization move, the legislature added five members of the state highway commission to the state's five-man turnpike authority. Purpose is to achieve greater integration of the functions of the two agencies, particularly since the turnpike authority has right of eminent domain. The act, in effect, gives the highway commisison a majority in the turnpike authority, since its chairman is ex-officio member of the authority.

Despite heavy opposition by contractors, a measure was adopted requiring the state highway commission upon request to do street work at cost for towns with a population of 5,000 or under. Sponsors of the bill contended that towns of this size—of which there are 300—do not receive enough state aid for streets to make it worthwhile to employ contractors on this type of work.

The legislature created a Carolina-Virginia turnpike authority to deal with the proposed toll road along the state's outer banks between Virginia Beach, Va. and Nags Head, N. C.

Provision was made for toll financing by the state highway commission of certain large bridges—spans at least a mile long and costing $1 million or more. Purpose, here, was to pave the way for construction of long-sought bridges across the Alligator River and Croatan Sound in the eastern part of the state.

The legislature approved bond issues of $50 million for state aid to public schools and $22 million for construction of mental institution facilities, both subject to approval of the voters. A $14.2-million bond issue, not requiring a referendum, was approved for improvements to state educational and other institutions.

Despite a warning by state engineers that it would accelerate road damage, a bill was adopted increasing axle load limit from the present 18,000 lb to 19,000 lb.

Overloaded bridge collapses

Proposed replacement of a bridge on the Canadian River southwest of Norman, Okla., became a vital necessity last week when the 40-year-old, 151¼-ft span collapsed under the weight of a 33,000-lb earth mover. An auto on the bridge at the time was smashed by falling girders and a passenger was seriously injured.

Amis Construction Co. of Oklahoma City, owner of the earth mover, had been given a $5 permit by the highway patrol to move the equipment to Kansas. Whether the firm had permission to cross the bridge—posted for five-ton load limit—is now in dispute.

Plans were already on the boards for a new $3-million bridge at the Norman crossing. It was hoped to start pier and substructure work this summer. Last week's mishap started action for an immediate appropriation of $1.7 million to get the work started. An emergency highway appropriation of $7 million has been hung up in the state legislature.

Landslides menace Grand Coulee area

Reclamation Bureau and Army Engineers study cause of threatening rise in water level of Soap Lake

Recent local alarm over landslides and a rising lake in the Grand Coulee area of Washington have led to an investigation of remedial measures by both the Bureau of Reclamation and the Army Engineers.

Land movements have been occurring on the right bank of the Columbia River, below Grand Coulee Dam. Soap Lake, near the lower end of Grand Coulee, has been rising at a rate that threatens inundation of the city of Soap Lake. Residents tend to blame the rise on the filling of the Grand Coulee balancing reservoir, which began in 1951.

Partly because of concern over the landslides, the Seattle District Office of the Army Engineers will propose to Corps headquarters that the slide area be included in the reservoir that will back up behind Chief Joseph Dam, 51 mi downstream from Grand Coulee. About 30 families would be removed from the area along the river bank at Elmer City, which is located 3 mi below the dam.

Col. N. A. Matthias, Seattle district engineer, says there is no agreement as to the immediate cause of the slides. Small but repeated sliding has necessitated re-adjusting of telephone and power lines and repairing of domestic water lines. A road pavement has been cracking badly and a few foundations have developed cracks.

• **Effect of glaciation**—The Reclamation Bureau, which built Grand Coulee Dam, analyzes the situation this way:

The Columbia River once was dammed by glaciation, probably in the area of present Chief Joseph Dam. This created a huge lake which filled with beds of sand, silt, gravel and boulders. When the ice dam failed, the Columbia River returned to the original course and cut rapidly through the sediments to reach its former bed. The banks of unstable materials started sliding into the river and this condition still persists but at a much slower rate since the banks are now nearer the point of stability.

The bureau refers to the fact that the spring of 1948 was one of exceptionally high precipitation, which saturated the whole area. That also was the year of a near record Columbia River runoff, which removed material from the toes of the river banks. Since that time slides have developed at several points along the right bank of the river.

Other possible slide causes include river level fluctuations on account of dam operation.

Attempts are being made to determine if slides occurred in the area before the construction of Grand Coulee Dam.

• **Explanations for Soap Lake rise**—The dam also is being blamed for a rise in the water level of Soap Lake, the most southerly of a chain of lakes on the lower Grand Coulee. Unlike the others, that lake is fed by freshwater springs and subsurface sources, and it has no outlet. Its evaporation has resulted in a concentration of mineral deposits and it now is an alkaline lake which, when the wind blows, froths like soapy water—hence the lake's name.

Soap Lake has been rising since 1947, but the Reclamation Bureau points out this is a normal condition and that other lakes in the Pacific Northwest have been following the same trend.

The West Canal of the Columbia Basin project approaches Soap Lake on the east, is siphoned around the north end and again enters the canal on the west. Residents blame the lake rise on leakage from the project. Canal water comes from Grand Coulee equalizing reservoir, which gets its water by pumpage from the reservoir behind Grand Coulee Dam.

Says a bureau spokesman at nearby Ephrata: "We realized there would be water losses from the project, and have put down many observation holes and pumping wells so that this water could be removed. Pumping operations from these wells will be started in the near future and the fresh groundwater will be dumped into the West Canal."

At the request of the Soap Lake city council and other groups, the bureau pumped from both Soap Lake and nearby Lake Lenore during the period from January to March this year.

In response to the conjecture about the leakage, the bureau calls attention to the fact that the lake rise started in 1947, four years before first water was pumped into the equalizing reservoir in 1951.

Oahe back in budget

Oahe Dam is back in the Administration budget for next year. Following pleas by governors of the ten Missouri Basin states, the Budget Bureau agreed to restore $8.2 million of the $14.8 million requested for the project by former President Truman (ENR April 23, p. 21, April 30, p. 23).

Gov. Sigurd Anderson of South Dakota, chairman of the Missouri River States Committee, has been pushing the project before the House subcommittee considering appropriations for Army Engineer civil functions. Congress is expected to support the Oahe appropriation.

Steel executive reports bridge building boom

The country is in for a prolonged bridge-building boom, F. K. McDanel, president of U. S. Steel's American Bridge Division, declared in Pittsburgh last week. "During the last six months, inquiries for bridging have set a new record," he says.

A good part of the growing demand is tied to the nation's plans for new highways, work on which the company's experts figure, is eight years behind schedule. Proposed bridges, they point out, will require more steel because they have to be wider and heavier to meet modern highway construction requirements.

Trees survive collisions; state will remove them

"Traffic hazard" trees along Virginia highways are to be cut down. Thus far this year 21 persons have been killed in 15 automobiles which ran off highways and crashed into trees.

With certain exceptions, no tree will be allowed to remain along Class 1 and 2 highways within 15 ft of the pavement. This is based on the general requirement for a minimum of 10 ft for shoulders plus 5 ft ditch width.

Exceptions are at points where the speed limit is under 45 mph; where trees have special size or historical significance and are adequately protected by devices such as guard rails, or where trees are growing on cuts or filled slopes and are not considered dangerous to traffic.

On Class 3 and 4 highways all trees between normal ditch line and pavement will be removed unless adequately protected.

For the present, the program plans tree removal only within the right-of-way. Later it is expected that an effort will be made to get permission from private property owners to remove trees which are growing beyond the right-of-way but which are considered hazardous to traffic.

Wage strike tempo increases

Many parts of the country are hit by strikes and strike notices as unions demand higher wages

The construction industry strike picture darkened during the last week as many unions demanded higher wages and more fringe benefits and struck when the demands were not met. In general contractors are trying to hold the wage line.

No one union seemed to be leading the building trades into the strike pattern. Sometimes it was the carpenters, sometimes the ironworkers and occasionally a building trades council representing 20 unions that would call the strike. But no matter who started it the strike usually wound up with all trades out.

• **Minnesota picture**—At least two dozen strike notices against employers, have been filed by building trades unions in Minnesota with "more coming in every day," the state labor conciliator's office in St. Paul reported.

Upwards of 10,000 employees and several hundred firms and employers are affected. The labor conciliator's office has been conducting negotiation meetings and is scheduling more as time permits.

Building trades unions in Minneapolis-St. Paul alone have filed 13 strike notices through April 30 to take advantage of the state's labor law under which they are required to give 10 days notice before a strike.

Typical of wage demands are those of the carpenters of both cities, who demanded about 30 cents an hour increase—10 cents of it for health and welfare funds.

• **Iowa strike**—Major construction work was halted in parts of Iowa by a wage dispute in the building trades.

Called by the Des Moines AFL ironworkers, the strike included other AFL unions as it spread to more Iowa cities. Construction work was halted on power projects at Boone, Marshalltown, Eddyville, Waterloo and Dubuque.

At Des Moines, five locals were directly on strike with 1,000 members, but 4,000 members of other trades refused to cross the picket lines. Most of Des Moines construction was halted.

Other strikes in the state were led by ironworkers seeking a raise of 25 cents an hour and a 7½-cent welfare payment. Other trades are asking about 25 cents an hour rise, too.

John Ringland, president of the Des Moines Master Builders Association, said wage increases have been refused because the rates already are at "an adequate level."

• **Tennessee**—Although warned that the inflation spiral has reached its top and that higher wages were out of line with other costs, about 25,000 AFL building trades members went out on strike last week in Tennessee.

Most construction in the Knoxville and the surrounding area was at a standstill as building craftsmen failed to report for work in the surrounding 15-county territory.

Only plumbers and electricians reported to work because their contracts do not expire until July.

The unions were seeking the 5.3%-wage increase granted by TVA to its construction and maintenance workers. The TVA has set the wage pattern in recent years and this always has been followed by unrest among workers who are employed by AGC members.

• **Wilmington, Del.**—Building construction—private, public and industrial—was halted in the Wilmington, Del., area by a general strike of 20 unions of the Building and Construction Trades Council, AFL. About 3,000 construction workers were idle.

The Allied Construction Industries of Delaware, following an executive committee meeting last week, claimed that union demands for wage increases varying from 15 to 50 cents per hour, plus fringe benefits, "are against the public interest."

• **Akron, Ohio**—AFL carpenters and laborers in the Akron area went on strike last week to support their demands for wage increases.

• **Other strike notes**—AFL carpenters in three downstate Michigan counties—Wayne (which includes Detroit) Oakland and Macomb—walked off jobs last week in a wage dispute with contractors. No strike was called and the expectation is for a settlement soon . . . Construction projects in Batavia, N. Y., and a surrounding four-county area were disrupted as a result of the walkout of 240 carpenters . . . Other New York state strikes were reported from Syracuse and Elmira . . . The AFL laborers are out on strike in four central Indiana counties near Indianapolis. The dispute is also over the wage issue.

Philadelphia heavy construction struck

The construction industry in the Philadelphia area is still staggering under a strike by some AFL building trades unions. (ENR May 7, p. 31).

The heaviest blow has fallen on the big, multi-million-dollar commercial construction projects and public improvement undertakings. At least 25,000 construction workers are out on strike or idled by their refusal to cross picket lines.

The strike began May 1, at the expiration of contracts between 20 unions and contractors. The unions have asked for pay increases, but the employers have turned them down.

Harry P. Taylor, executive secretary of the General Building Contractors Assn., representing 71 contracting firms, said a random survey showed that carpenters, structural iron workers, riggers, rod setters, steamfitters cement finishers and roofers were off the job, as the strike continued through May 5.

William E. Johnson, executive secretary of the Home Builders Assn. of Philadelphia and Suburbs, said member builders reported that all workers, with the exception of some carpenters, were at work. Johnson said workers remained on homebuilding jobs, because the home builders agreed to continue negotiations.

• **No quick end**—As of last week, there appeared to be no likelihood of a quick settlement of the dispute.

Employers—at least the 275 represented by the largest three employers associations—have stood fast in demanding that new contracts provide no wage increase. This year marks the first time since World War II that contractors have not offered some wage increases.

Robert M. Gray, secretary-treasurer of the carpenters' council, said carpenters would work for a number of independent contractors who had agreed to the union's 17 demands on the new contract.

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Labor control

Congress seeks to return power to the states

There is serious talk in Washington of reversing the trend of the last 20 years, which saw increasing federal control of labor problems.

This is important for management and unions alike because of the crazy-quilt patchwork of state labor laws in many states and absence of laws in others.

Most of the important state labor legislation has gone on the books since the Republican congressional victory in 1946. But because of conflict with Taft-Hartley, many laws have been nullified.

The Supreme Court, for example, set aside a Michigan law requiring a vote of employees before a strike can be legal.

In Missouri and Florida, state officials have taken cognizance of those decisions and have put their laws on the shelf for the time being.

• **Congress acts**—There is a strong move in Congress to put life into existing state laws and to stimulate more states to get deeper into the labor field. It shows up in two proposed amendments to Taft-Hartley:

• The Goldwater-Lucas bill would permit states to regulate picketing and strikes irrespective of any conflict with Taft-Hartley, which already gives precedence to 13 state laws (12 enacted since 1947) forbidding any form of compulsory union membership. There is a counter move on labor's part to try to get Congress to remove this concession to the states.

• The other is a bill by Sen. Alexander Smith to remove from the area of interstate commerce—and thus subject to state law rather than Taft-Hartley—all small businesses employing less than 10 workers, all local public utilities and local construction projects, and all business doing a small amount of business in interstate commerce.

This bill alone would eliminate about 40% of the work now done by the National Labor Relations Board. About one-fifth of the cases handled by NLRB involve employers of less than 10 workers.

• Another bill of this nature has the support of the NLRB itself. It would permit NLRB to cede jurisdiction over local enterprises, like retail stores, to state labor boards, which exist in 11 states.

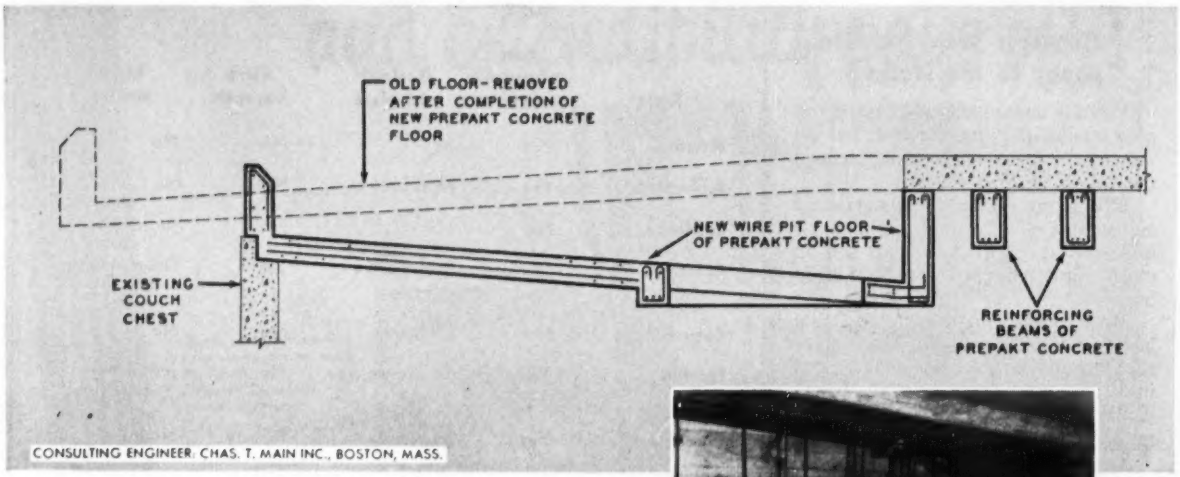
State labor laws

State	Ban compulsory unionism	Restrict picketing	Curb boycotts	Limit strikes
Arizona	Yes	Yes	No	No
Arkansas	Yes	Mass only	No	No
California	No	No	No	Jurisdictional
***Colorado**	¾ vote	Before strike vote	Yes	Strike notice & vote
***Connecticut**	No	Of homes	No	No
Florida	Yes	To dispute area	No	Jurisdictional & strike vote
Georgia	Yes	Mass only	Primary	Notice
Indiana	No	No	No	Utilities
Iowa	Yes	No	Yes	Jurisdictional
***Kansas**	Maj. vote	To dispute area	No	Jurisdictional & strike votes
***Mass.**	No	Of courts	Partly	Jurisdictional
***Michigan**	No	Yes	No	Jurisdictional notice & vote
***Minn.**	No	Yes	Yes	Jurisdictional & vote
Missouri	No	No	No	Utility
Nebraska	Yes	Mass only	No	Utility
Nevada	Yes	No	No	No
New Jersey	No	No	No	Utility
***New York**	No	No	No	Govt. employees
North Carolina	Yes	No	No	No
North Dakota	Yes	Before strike vote	Yes	Vote & notice
***Pennsylvania**	No	By non-employees	Yes	Jurisdictional & utility
South Dakota	Yes	Yes	Farm prod.	No
Tennessee	Yes	No	No	No
Texas	Yes	Yes	Yes	No
***Utah**	No	No	Yes	Strike vote
Virginia	Yes	Yes	No	Govt. employees
***Wisconsin**	⅔ vote	Yes	Yes	Jurisdictional & vote

* These states and Rhode Island have laws like the Wagner Act regulation of unfair labor practices.

Note—Laws in Wisconsin, Michigan, Florida, Indiana and Missouri have either been invalidated or are not being used because of conflict with Taft-Hartley.

PREPAKT KEEPS PRODUCTION ROLLING DURING MODERNIZATION *of* PAPER MILL


OLD FLOOR - REMOVED AFTER COMPLETION OF NEW PREPAKT CONCRETE FLOOR
NEW WIRE PIT FLOOR OF PREPAKT CONCRETE
EXISTING COUCH CHEST
REINFORCING BEAMS OF PREPAKT CONCRETE
CONSULTING ENGINEER: CHAS. T. MAIN INC., BOSTON, MASS.

Enlarged wire pit for new paper-making machine built by Prepakt method. Old floor was later removed.

Here's a case where a modern industrial plant completed most of its improvement program without interrupting production and losing profits.

The Mosinee Paper Mills Co. of Mosinee, Wisc., accomplished this by using Prepakt methods for placing concrete to support a new Fourdrinier paper-making machine and calender stack. The unique advantages of the Prepakt technique—preplacing aggregate in the forms and then pumping the voids full with Intrusion mortar—were clearly demonstrated in this case.

All construction for enlarging the wire pit and reinforcing the floors was done from the basement with existing equipment in place and without disturbing operations. Prepakt overcame difficult problems of placing concrete in "hard-to-get-at" overhead forms and produced high-strength bond to existing concrete. And the cleanliness of the Prepakt method avoided spoilage of any paper in process.

All concrete work was executed prior to the shutdown necessary for changing over to the new machine, reducing lost production to an absolute minimum.

Wire pit during construction showing reinforcing steel and preplaced aggregate

Completed wire pit before removal of old floor (above)

Reinforcing cross beams for calender pier structure were placed in difficult locations

This is typical of the important savings possible with Prepakt methods and materials. Full information on the advantages of Prepakt may be obtained from the Main Office, Cleveland, O.

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An ENR special report

SPAIN:

Next stop for U.S. airbase builders?

Waldo G. Bowman
Editor, Engineering News-Record

MADRID, SPAIN

Some day soon—and it might well be this month—the scratching of pens on paper in this sun-drenched, altitudinous capital of Spain will make a sound heard around the world. And it will not fail to penetrate into the offices of engineers, architects and contractors in the United States because it will signalize another call to airbase building in new, foreign and strange surroundings.

The sound may be urgent—or just merely insistent—depending upon the echo it invokes in Russia. But it will have to be answered in any event. And that's a fact that highlights the need for knowledge of Spanish construction conditions—physical and economic.

The pens whose scratching will be so portentous will be in the hands of U.S. Ambassador James C. Dunn and Spanish Foreign Minister Alberto Martin Aratjo, who will be affixing their signatures to documents granting the United States the right to build and use certain military airbases in Spain, along with the necessary seaport and naval facilities for their support and supply. For this right the U.S. will agree, in addition to paying for the construction of the bases, to provide the Spanish government with stipulated amounts of military equipment and economic aid.

• **What it will cost**—Back in 1950, Export-Import Bank loaned the Spanish government $62.5 million, and this was followed later by a $125-million car-marked grant by our Mutual Security Agency. When these amounts are added to the cost of work covered by the pending agreement, the check we eventually pick up may well be nearly half a billion dollars.

Twice what we should have liked to settle for, the figure is still only about half what the head of the Spanish State, Generalissimo Franco, is said to have first demanded. Protracted horsetrading over the last 18 months produced the compromise.

Which, if either, party gets the better bargain only the future will tell. We will obtain—for a sizable chunk of money—what are deemed to be absolutely essential military bases. Spain will receive an equally necessary economic shot in the arm—at a cost of offering herself as a military target to our enemies.

This agreement will be strictly business, with no clauses or codicils to reflect on or compromise the differing political ideologies of the two countries. It will also be a straight two-party agreement, with no strings attached that our allies in the North Atlantic Treaty Organization can pull. Theoretically, all this should simplify the task of base building as compared, say, with the U. S. airbase job in Morocco, or the joint operations under NATO in France.

The negotiations head up in the U. S. Embassy here, where the normal staff is augmented by two specialist teams—one military, one economic. The military team, sent over by the Joint Chiefs of Staff, is headed by Maj. Gen. August W. Kissner, an Air Force officer, and includes high-ranking Navy and Army representatives.

(*Continued on page 34*)

ON THE SPOT reporting for the benefit of construction men is an old ENR tradition, now being carried forward by Waldo G. Bowman, Editor of this journal. Mr. Bowman—now abroad on a tour that will take him to French Morocco, France, and Switzerland—is a veteran reporter of world events. His service as ENR's European war correspondent during World War II, and his numerous trips to Europe, India and other parts of the world in the years since the end of that war have made him well-known to ENR's readers and to engineers and construction men the world over as an expert in these matters.

SPAIN:

What's planned includes bomber and fighter bases, plus ports and facilities to support them

All ENR photos by Waldo G. Bowman

COMBINATION—Spain's new railroad stations combine traditional appearance with good construction. This one at Puerta del Santa Maria may become familiar to Americans if the Bay of Cadiz—on which it is located—becomes a supply base.

The economic team, reporting to the Mutual Security Agency, is headed by George F. Train, an expert in international finance with considerable knowledge of construction. The fact that General Kissner formerly was chief of staff of the Strategic Air Command is a tipoff to the kind of airbases that are being planned.

• **What is planned**—Since negotiations are still going on, these top U.S. officials are extremely reluctant to talk, and the same can be said for the top representatives of the Spanish government. Such inhibitions, however, do not bother the Spanish construction industry any more than they would American engineers and contractors under similar circumstances. From this source, and from others on the fringe of officialdom here and in Washington, one can glean enough of the possibilities and probabilities to marshal some fairly logical-sounding guesses of what is planned.

It is believed that at least eight sites for strategic bomber bases have been brought into the discussion. Of them, four will be chosen for initial construction. One of these, a headquarters base, will be near Madrid, the governmental and communications center of the country. The others will be located within 200 miles of the capital, since that is about the extent of the great interior plateau of Spain where there are large areas relatively free of mountains and thus suitable for bases.

However, it seems fairly certain that the Seville area (not on the plateau) will be one of the locations since that city's poor facilities on the Guadalquivir River logically can be used for the discharge of supplies brought by sea. This would be the supply base. The remaining two bases could be at various sites south of Madrid, but Albacete and Ciudad Real are believed to be in preferred positions since they are on main transportation routes from seaports that will be available for our use.

All of these sites have the advantage of being safely behind the mountain barrier that rings the country and yet are far enough from it to assure good radar reception.

All of these bases will be developed at the sites of existing Spanish military airfields—that way construction will be less costly. Also it leaves Spain's three large civilian airports—Madrid, Seville and Barcelona—free of our military traffic, but available as additional bomber fields in case of need. There is an 8,500-ft concrete runway at Seville, now being lengthened to 10,000 ft, and Madrid's Barajas Airport at present has a 10,000-ft concrete runway.

Since the Spanish setup is to be a complete airbase complex, there will need to be fighter fields farther up the line for escort planes and for emergency landings of returning bombers. Whether these will be covered by the first agreement is not known, but probable sites on existing Spanish airfields are at Valencia, Zaragoza and Barcelona.

If the bomber bases are on the interior plateau (average elevation about 2,500 ft) the runways will have to be relatively long—12,000 ft, maybe more. In addition to the runways, U.S. construction will include extensive P.O.L. (petrol, oil and lubricants) facilities, some hangars and the necessary personnel housing. The latter will be kept at a minimum to allay Spain's fear that the country will be overrun with Americans, and to meet congressional criticism of some of our other well-populated foreign bases.

Housing for 500 probably will be the maximum; any other personnel required to run the bases will be Spanish and hired by the Spanish government. Nor will the hangars be numerous, since all storage and most maintenance can be done in the open—one of the advantages that the Spanish climate makes possible.

The naval and port facilities, in addition to those at Seville, are scheduled to be located at Cadiz and Cartagena. Both have good natural harbors, and while some dredging will be required, the principal construction will be wharfs, storage sheds and cargo handling gear. Cartagena is the site of a Spanish naval base and the principal point of entry for petroleum products. A refinery is located there that now processes Venezuela crude oil and produces some asphalt. Modernization to permit more efficient handling of aviation fuel and lubricants probably is on the schedule for Cartagena.

At Cadiz, the new cargo handling facilities probably will be located across the harbor at Santa Maria, which is 25 miles nearer the airbases than the main Cadiz port.

Seville, 50 miles inland, has the disadvantage of a river approach that can take vessels of only 22-ft draft on the tide—not enough for tankers but sufficient for many cargo ships. Actually the port of Seville handles one-half of the imports that go to the Madrid area, and two-thirds of the Spanish exports to the U.S. The river may require some dredging, and some new cranes and warehousing will have to be added. That General Franco has held out for some modernization of Seville seems fairly certain. He has a great liking for the city, which was friendly to him during the bad days of the war, and has told its people that he will make it again the pre-

eminent Spanish port that it was in the days of Spain's great colonial empire in the Western World.

• **Requirements of the job**—What amounts of equipment, materials and contractor organization will be required to process this program—and to what degree the economy and construction industry of Spain can supply them—are still matters of study behind closed doors. It is nevertheless possible to make a few estimates that may be revealing:

For example, the big airbases will be of the so-called medium-bomber-wing variety, which can base all of our bombers except the B-36 and can even accommodate that ship for landings and takeoffs. This means runways, aprons and taxiways to take 100,000-lb wheel loads, requiring 16-in. thick concrete slabs or, if a flexible type pavement is used, a 27-in. thickness of compacted subgrade of which the top 4-in. is wearing surface containing asphalt. The total pavement surface in a base of this type—two runways, two taxiways and aprons—amounts to 1,200,000 sq. yd., on the basis of 12,000-ft runways.

For such a base, assuming all of the pavement would be concrete, the cement requirement, based on a 5-sack-per-cu-yd mix, would be 625,000 bbl or 120,000 tons.

If all of the pavement were to be of asphalt—an unlikely possibility since aprons, taxiways and a 1,000-ft length at each end of the runways are preferably made of concrete—the amount of asphalt required would approximate 8,500 tons based on a 6% bitumen content. If the aprons and taxiways were of concrete, the asphalt requirement would be cut to 3,650 tons.

Taking the maximum requirements for both cement and asphalt as the criteria, four bases would need 480,000 tons of cement or 34,000 tons of asphalt. If, in addition, the so-called strategic-fighter-wing bases were also to be built, these quantities would be increased accordingly. Such bases have about one-quarter the pavement area of the bomber bases and about one-fifth of the pavement volume, thus requiring 24,000 tons of cement or 1,500 tons of asphalt each. The total cement requirement for seven bases would then be 550,000 tons and for asphalt 38,500 tons. Can Spain supply such amounts of these materials?

The cement figure represents one-quarter of Spain's 2,300,000-ton (12 million bbl) production last year. Since all of this cement was consumed by the domestic economy, imposition of the additional airbase requirement obviously would have an adverse effect unless spread over several years.

Spain's 35 principal cement plants—four near Madrid, five in the south and the rest in the northern part of the country—claim to have an annual capacity of 2,900,000 tons, but it is doubtful if they could produce any more than they turned out last year. Moreover, much of the product is inferior because it is made with coal having a high ash content. The conclusion would seem to be that we would either have to supply Spain with a good grade of coal to be assured of the necessary high quality domestic cement, or to import cement for the airbase construction.

As to asphalt, practically all of it would have to be imported.

Of the other necessary materials, all probably can be obtained locally with the possible exception of steel. Spain's ingot production totals about 800,000 tons annually of which about half is rolled into structural shapes. The mills, which are located in the northern provinces along the Bay of Biscay, say they could increase their production 20% if three times the present 100,000 tons of scrap consumed could be obtained. Here again, however, the domestic economy, as it has operated during the last two years, uses all of the steel that the mills can produce. Some steel therefore probably would have to be imported for the airbase program.

When one comes to construction equipment there is no question of what must be done—import it all. None of the types of equipment required for fast, heavy construction exists in Spain, and about the only items

(*Continued on page 37*)

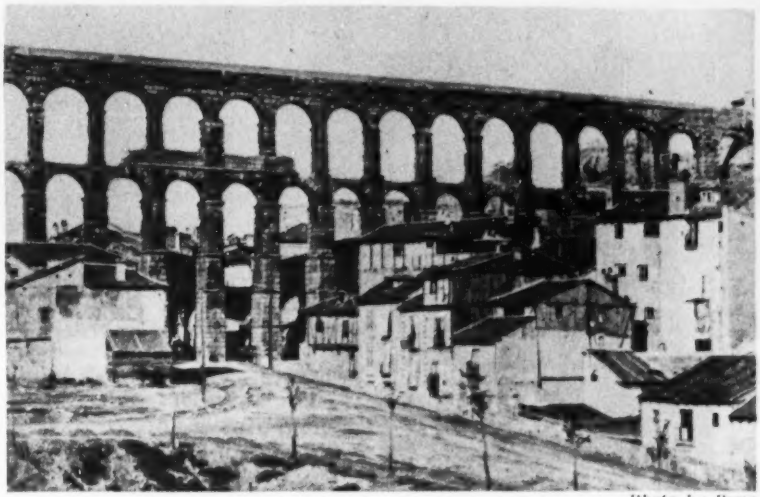

Photo by Rync

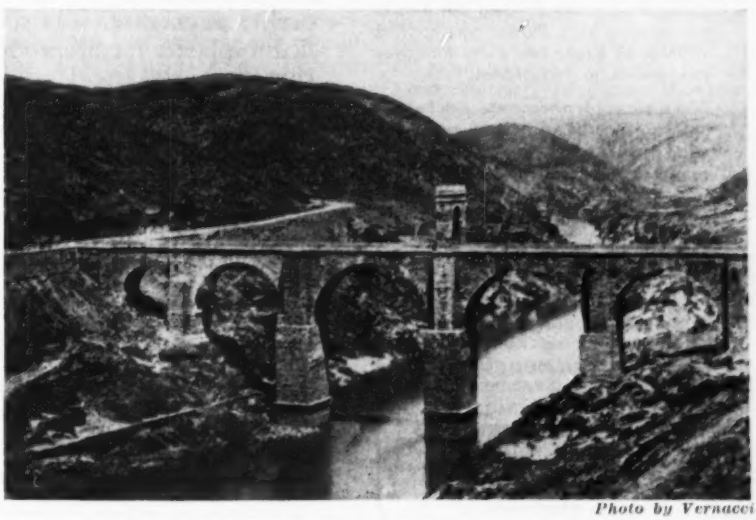

Photo by Vernacci

SPAIN'S ROMAN MONUMENTS, now 1,900 years old, can be seen on weekend trips by U. S. airbase builders. The Segovia Aqueduct (top) 100 ft high is second only to France's Pont du Gard as a Roman water supply achievement, while Trajan's Bridge at Alcantra (bottom) is still in use, its center arch of 98-ft span flanked by piers nearly 200 ft high reflecting Roman engineering at its greatest.

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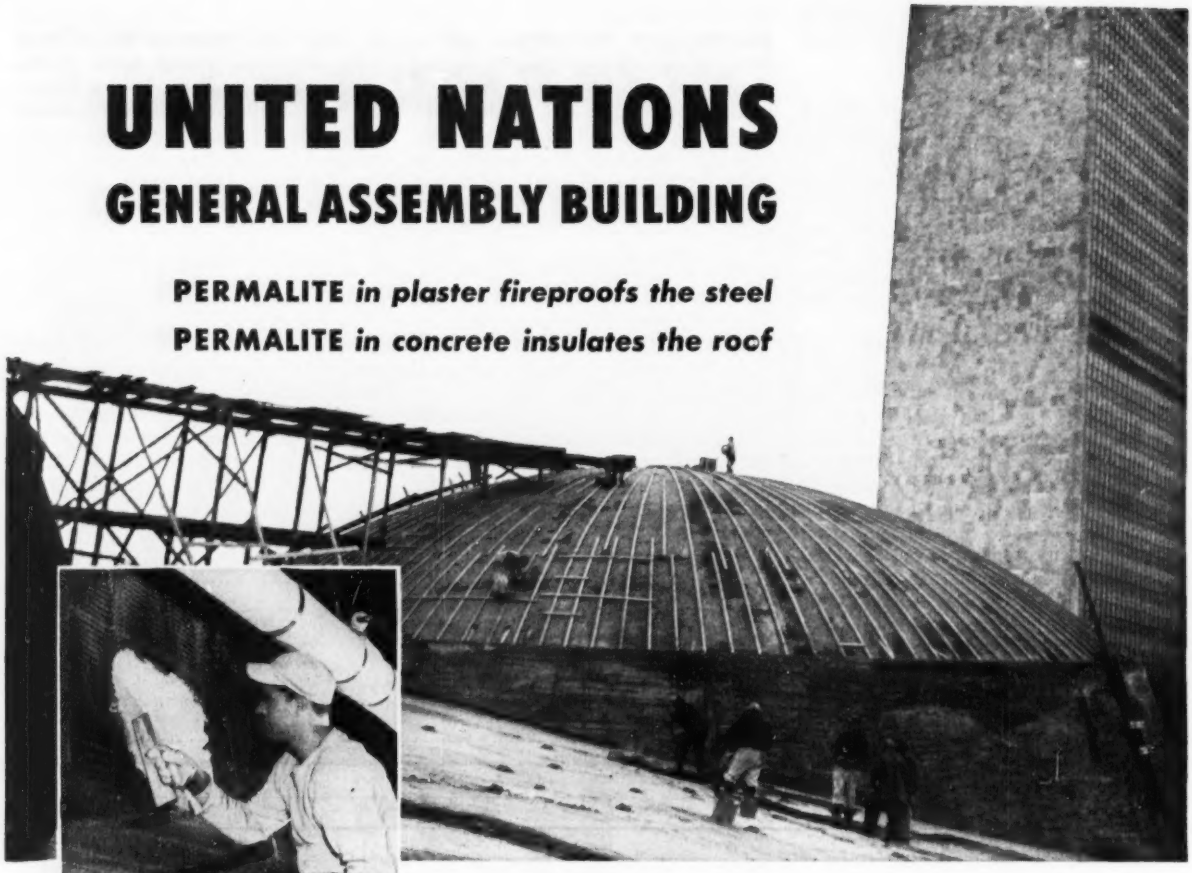

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SPAIN:
The business climate will be very different

GOOD TO SEE YOU—Spanish feelings toward the U. S. are reflected in the prominent display given this Spanish-made motion picture detailing advantages of the Marshall Plan. The picture—and audience reaction—indicate friendship between the peoples.

that are manufactured are trucks and diesel engines.

This lack of equipment and unfamiliarity with its use is probably the deciding factor when it comes to measuring the ability of Spanish contractors to build any of the airbases. There are perhaps 50 firms in the country big and competent enough to build one of the bases if allowed sufficient time. Seville's fine airport is said to have been constructed almost entirely without machinery, but it required four years. The contractor organizations nevertheless have good engineers and management that knows how to obtain and use the Spanish hand labor. They will be found lacking principally in the middle grade of employee – superintendents, foreman and the like—who can run a mechanized job.

As to architects and consulting engineers, there are a number of competent ones in Spain who operate on about the same basis as U.S. firms. Mostly they are engaged in building work, however, with the other types of engineers—sanitary, bridge, foundation, hydraulic—being on the staffs of contracting companies. Government department engineers also do a considerable part of the public works designing, although they are aided frequently by the contractor who gets the job.

For those interested, a newly revised list of Spanish architects, engineers and contractors, being prepared by the U.S. Embassy staff here in Madrid, should be available soon from the Bureau of Foreign and Domestic Commerce in the Commerce Department in Washington.

• **Who gives out the contracts?**—Considering this situation in Spain, it is apparent that American participation in the airbase designing and building must be considerable. Just how American technical know-how will be applied and how many U.S. firms with how much personnel will be chosen has not yet been spelled out—at least publicly. This much is certain however—Spanish firms and government engineers from the Air Ministry will also play a prominent part. General Franco wants it that way so that his people will get training in large-scale mechanized construction operations. But what is equally important is that the U.S. authorities also recognize the value of having Spanish ability applied to handling Spanish labor, obtaining local materials and threading through the maze of national laws and regulations that will have to be complied with.

Joint ventures of Spanish and American contractors probably will not be practicable—or wise—so far as Americans are concerned. The contracts could go to Spanish firms, with the Americans participating in equipment instruction, job planning and expediting U.S. equipment and materials purchases. Or American contractors could get the jobs, using Spanish firms as specialist subcontractors to deal with the local problems and with labor.

Similar alternatives apply to the use of engineer-architect firms for the design and for construction inspection. It is rumored that several combines of Spanish architect-engineers are being organized in anticipation of the airbase program. In any event Spanish-type structures would be used as extensively as possible, and the designing probably would be done in Spain so as to avoid the expense and delay of converting English units to metric measurements.

There is also the undecided question of whether to use different U.S. architect-engineer groups for each of the bases or just one or two for all of the program. In either case, the U. S. probably will negotiate a contract with a construction management group of U.S. contractors to oversee the entire operation.

Precedent for this latter arrangement is seen in the setup that the Air Force (dominant factor in the Spanish program) planned—and was not permitted to keep—in France. There, American engineer-architect firms with French affiliates were given groups of bases, construction went to French contractors, but an American contractor group was given an overall management contract. In France this setup was superseded by a Joint Construction Agency answerable to NATO, so as better to coordinate not only the plans of the different countries involved, but also the construction operations of the three U.S. military services. In Spain such an arrangement will not be necessary since only the U.S. is involved and since the major emphasis is on air facilities and their servicing.

If you aspire to a part in this forthcoming construction job in Spain your initial point of contact probably will be with the Directorate of Installations, U.S. Air Force, Washington, although the Navy's Bureau of Yards and Docks will not be without influence on the port and harbor phases of the program. The Department of the Army and its Corps of Engineers are at present only interested bystanders, although the chance that they

(*Continued on page* 39)

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SPAIN:
Controlled economy can make things rough

might later come into the picture as the modernizers of the Spanish railways is one of the current rumors. So far as can be learned, however, railway improvement is not a part of the agreement now being readied. No doubt, General Franco suggested that it should be—better railways being badly needed in Spain—while our negotiators countered the suggestion with the promise to look into the subject if the transport service between the ports and the airbases proves to be inadequate.

The same postponment of decision will apply to pipelines. They are in the planning but not in the present picture.

ENR photo

NARROW DOOR—The Guadalquivir River is the entrance to the port of Seville (background) which may become a principal supply port for U. S. bases in Spain. Old wharf in foreground accentuates narrowness of stream.

• Doing business in Spain

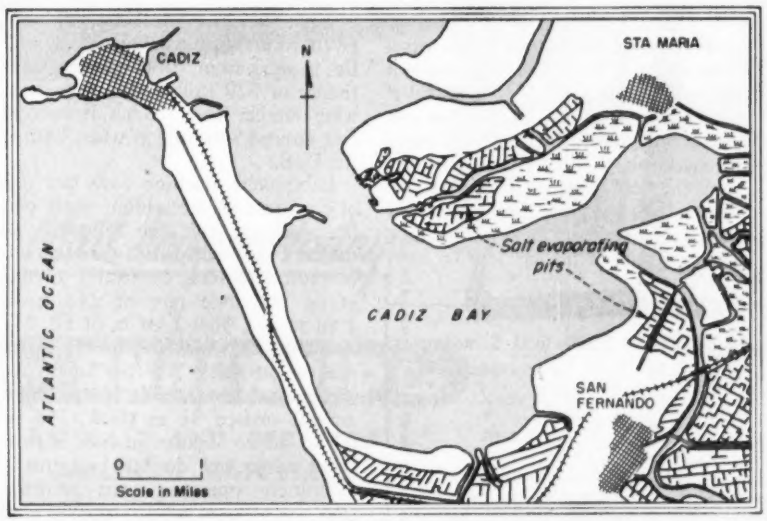
No matter how the final arrangements are worked out, however, there will be a certain number of American engineer and contractor firms that must gear a part of their operations to work in Spain.

A basic point to be appreciated is that Americans will find in Spain a controlled economy the like of which they have never experienced.

This does not augur smooth sailing for doing business in Spain, but still may not be without advantages. For one thing, there will be no strikes to hamper operations. They are illegal in Spain. There are trade unions, called syndicates, but they are answerable to and largely organized by the government. There will be no collective bargaining on wages. They are fixed by government fiat, and they include not a little "take" for the government (187% of the basic wage to be exact), to be used to finance its extensive social services—pensions, public hospitals, accident insurance and the like.

Indeed, the totalitarian Franco government regards itself as administering a social state in the interest of the laboring man. Its fundamental state document is a Labor Charter, which is supplemented by well over a hundred laws and regulations relating to labor rights and services. These are applied through the so-called vertical labor syndicates, one for each class of business, as banks, textiles, transport, etc. Although employers are nominally a part of these syndicates, which include by law "all elements engaged in the economic process," their freedom of operation is not greatly circumscribed except in the amount of wages they must pay and the working conditions that they must maintain. Spanish contractors say that they freely compete for jobs, and that there is no collusive syndicalism such as is encountered in some other European countries.

Nevertheless, there is one facet of doing business in Spain that should not be overlooked—an overall difference in moral climate from that encountered in the U. S. Thus there is no particular stigma attached to the use of clever lawyers to get around government restrictions, nor to paying black market prices for products, or even to having public officials engage in private work in their own fields of public responsibility. The resulting "intricacy" of doing business in Spain is probably one of the best reasons for having Spanish contractors, architects and engineers prominently allied in the base building job.



U. S. PORT AND NAVAL FACILITIES would be established on Cadiz Bay on the Atlantic approaches to the Strait of Gibraltar, according to the latest plan. Dredging a pier and warehouses would be required.

• **Labor force**—Base builders will have ample supplies of labor in Spain, particularly in the non-industrial parts of the country where the jobs will be located. There are 400,000 registered construction workers in Spain, although this figure understates the supply since most of the common labor comes from agriculture where it can make a living wage only during the harvest season. Some means probably will have to be found to permit these workers to return to the farms for about 3 or 4 months a year without upsetting the base building operations.

It is said that Spain has no objection to the importation of foreign workers, but presumably none would

(*Continued on page 40*)

SPAIN:

Multiply the basic rates for wages by five

be welcomed so long as Spaniards are unemployed.

Labor is hired through employment bureaus. These are branches of the syndical organizations, but are closely controlled by the Ministry of Labor to see that all social regulations are complied with.

The Spanish construction worker is hardy, and quite skillful at manual tasks. His productivity is quite high considering his lack of tools—in other words he isn't lazy. He takes a siesta from 1 to 3 or 4 pm, but he puts in a full 8 hours of work. The principal difficulty with the workman will be in the large number of holidays that he observes—and gets paid for.

Spaniards who have had anything to do with machinery are pretty good mechanics—and have to be to keep some of the worn-out trucks, buses and taxicabs operating. Unfortunately, there aren't many mechanics in Spain as attested not only by the low motor vehicle registration, but by the fact that only one in every 200 farms has a tractor. Nevertheless, Spaniards of the skilled-workmen class learn fast, and Spanish contractors say they could be trained quickly to operate and take good care of machinery.

• Labor wages—Daily wages in Spain are fixed by government edict for all classes of workmen and supervisors, and vary somewhat according to four designated zones of the country. Madrid is in the highest zone, Seville in the next, Cadiz and Cartagena in the third, while the other two airbase sites probably will be in the lowest zone. Taking the highest zone as 100%, the order of variance is 97%, 86% and 80%.

As to the wages themselves, it is important not to be misled by the official base rate. As a broad generalization, the actual pay scale should be figured at about five times the basic rate. For example: the basic rate for a skilled worker is 19 pesetas for an 8-hour day. To this must be added a 50% cost of living allowance, which brings the wage up to 28.50 pesetas. Then comes an addition for social taxes, which are figured at 187% of the basic rate. This adds another 35.5 pesetas, so that the actual legal daily pay has been built up to 64 pesetas.

But this isn't all. Spanish contractors have found that they must pay bonuses if they are to get workmen on public works in competition with industry, and particularly if they want to attract common labor from the farms where the earnings are about twice the official wage during about 4 months of the year. As a consequence our skilled worker, who is legally entitled to 64 pesetas a day, will get 60% more from the contractor when he turns out a certain normal production. The final wage is 102.4 pesetas, or $2.56 a day. Actually, on an annual basis, the contractor must consider this workman's wage charge as being about 25% higher still, since legally he must be paid the 64 pesetas for about 100 holidays including Sundays, when he doesn't work.

The same kind of buildup must be applied to all classes of workmen. Field supervisory personnel get about $75 a month basic which must be about doubled to take care of the extra social charges. Overtime rates are not particularly high, but it is doubtful if many of the workmen will or can put in overtime since they will live some distance from the job. If this distance from the job to the city where the worker lives is more than 2 km (1¼ miles), he must be paid 0.3 pesetas per km. Also, if he has to live away from home to work on the job he will be entitled to 20 pesetas surplus daily, and high category employees to 50 pesetas. The overtime rates are 25% on the basic rate week days, and 40% nights and Sundays. And the basic rate goes up 20% for all night shift employees.

As was stated above, it will be wise to multiply all basic wage rates by five to arrive at something approaching the actual labor charge. And, if overtime, night and Sunday work are in the picture, the multiplier had better be six. In the table giving hourly wages of building labor, the multiplier is only about 3 since these are the official legal rates including taxes. They do not account for bonuses, and do not reflect the additional labor cost that the contractor must bear as the result of paid holidays.

• Other costs and prices—The other table gives the prices of basic construction materials in Spain. It will be noted that while they are less than in the U. S., the reduction is only about 30%, whereas labor rates are nearly 90% under those paid in the U. S. How much of a saving this augurs for the Spanish bases over comparable construction in the U. S. is not certain but one Spanish contractor, who was given accurate dimensions and quantities to work from, came up with an estimate of $20 million for a medium-wing-bomber base. Such bases have cost around $40 million when built in the U. S.

Labor and machine costs per unit of construction are seldom made public in Spain, but the following are declared by one Spanish contractor to be typical (pesetas converted to cents at an exchange rate of 2½¢ each): 1 cu m cut, 36¢; 1 cu m of fill, 31¢; excavation in rock, 80¢; concrete pavement 6 in thick, 85¢ per sq m; macadam base 12 in. thick, 20¢ per sq m; asphalt surface 3½ in thick, 75¢ per sq m. These figures include no material costs, but do take account of machinery operating and amortization costs where machinery was used. They thus measure labor productivity to a certain extent.

(*Continued on page 43*)

CONSTRUCTION MATERIALS PRICES IN SPAIN

		Equiv. in U. S. money*
Cement	480 pesetas/metric T	$2.00/bbl
Steel (fab & erected)	7200 " "	$163/ton
Reinforcing bars	2750 " "	$ 62/ton
Lumber 2×4"		
1st Class Pine	1300 pesetas/cu m	$ 63/M fbm
2nd Class Pine	1100 " "	$ 54/M fbm
Gravel 1½"	70 " "	$1.75/ton
Sand	40 " "	$1.00/ton

* Based on exchange rate of 40 Spanish pesetas per U. S. dollar.

HOURLY CONSTRUCTION WAGE RATES IN SPAIN

	Spanish wages†	Equiv. in U. S. money*
Common labor	5.7 pesetas/hr	14.25 cents/hr
Carpenters	9.0 "	22.5 "
Bricklayers	9.0 "	22.5 "
Ironworkers	9.0 "	15.75 "
Helper for each skilled worker	6.3 "	

† These rates are the official basic wage + 50% cost of living bonus + 187% tax for social services. The take-home pay is thus slightly more than one half of the above indicated rate.

* Based on exchange rate of 40 Spanish pesetas per U. S. dollar.

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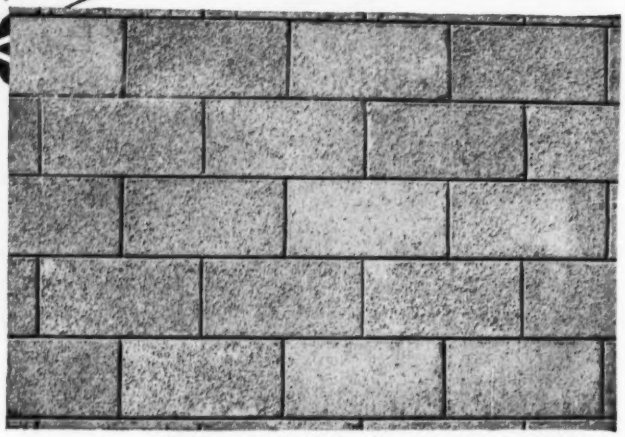
4" x 16" and 8" x 16" courses

Basket-weave using 8" x 16" units

Theme and Variations

Tooled horizontal joints; verticals wiped out



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Here 8" x 8" units are stacked

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A very effective patterned Ashler

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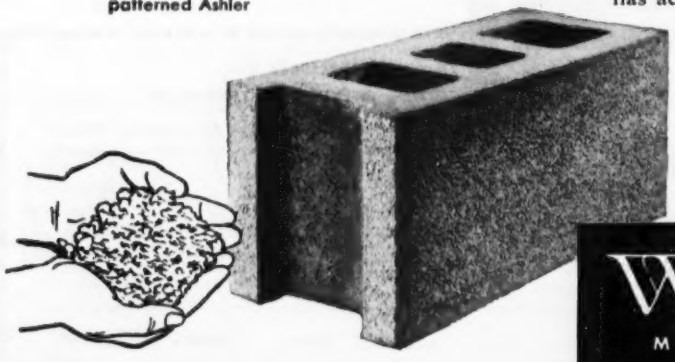
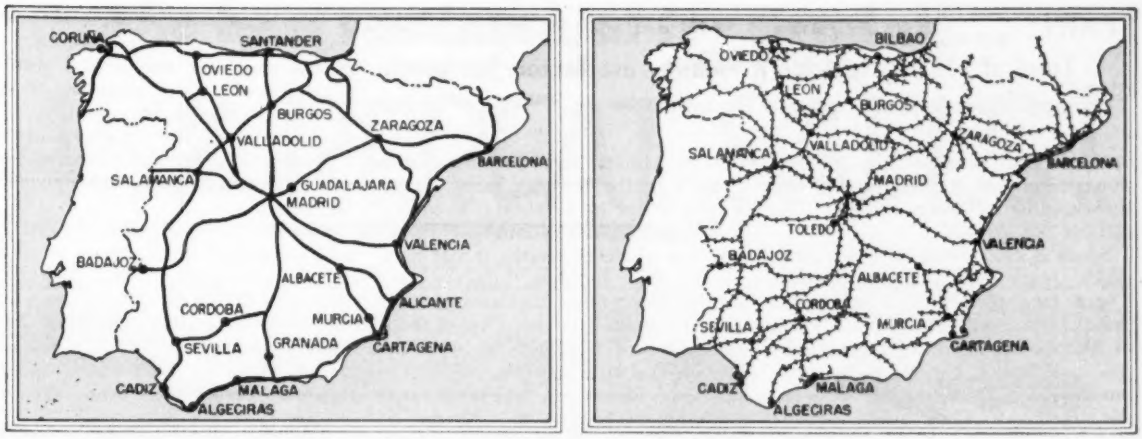


WAYLITE

MASONRY UNITS



HIGHWAYS AND RAILROADS IN SPAIN are extensive, but poor in both roadbed and rolling stock. The maps show only the principal highways, but all of the rail system.

SPAIN:

Climate is dry and hot; road and rail transport system looks far better than it is

• **Some final facts**—Geography, climate, transportation and power availability all play a part in determining the character of the airbase building job that looms in Spain. Here are a few pertinent facts.

Except for the port work, American construction operations in Spain probably will be confined to the high central plateau that is one of the distinguishing characteristics of the country. The Iberian peninsula, of which Spain is the larger part, is essentially a big saucer, its center the plateau of 2,000 to 3,000 ft elevation, its edges mountain ranges of varying heights.

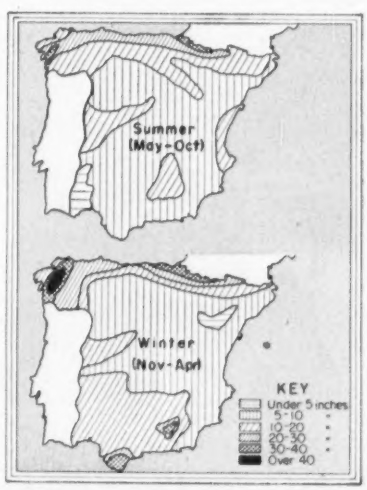
A north-south line, slightly east of Madrid, is approximately the drainage divide of the country. Most of the principal rivers run westward—the Guadalquivir, Guadiana, Tagus and Duero. All are mountain streams, and only the Guadalquivir is navigable—a distance of 50 miles from Seville to the mouth. The eastward flowing rivers are the Ebro along the base of the Pyrenees and the Jucar farther south.

But it is the central plateau that is of principal moment to the base building program, and there rivers are notable by their absence. Except for perhaps a month in the spring this is truly arid country, with annual rainfall in the flatter regions suitable for airbases averaging only 16 in. The accompanying maps give a more detailed rainfall pattern.

Temperatures are high in these regions in summer, and icy winds sweep them in winter, propelled from the snow-capped mountains.

The plateau, or "high meseta" as it is called, occupies nearly half of the 193,000-sq mile area of Spain. Eroded for thousands of years, its terrain is rolling except for the hard rock mountain extrusions. The soils vary from gray earths around Madrid, at the western edge of the plateau, to red and yellow clays northward and southward. The better soils grow wheat and other grain crops, the poorer ones provide sheep grazing lands of a sort. Toward the south the soils support extensive olive groves.

Groundwater in most of the plateau is nearly as scarce as surface water, but probably because the Spaniards use only shallow wells—25 to 50 ft. Since the whole area is underlaid with limestone and since most surface water disappears into the ground, it is generally believed that deep wells would tap extensive reservoirs. If the airbase builders need water they will have to drill for it.



RAINFALL IN SPAIN is meager. In the areas where U. S. bases are apt to be located it is seldom over 10 in.

Working conditions, it seems clear, will be comparable with those found in the higher desert regions of New Mexico or Arizona.

The port builders, and those who build the Seville airbase, will fare somewhat better than those who have to work on the plateau. Both Cadiz and Cartagena, as well as Seville, are in the warm south, which even in the summer is not as uncomfortable as the burned-up plateau. Seville (375,000 pop.) is one of the country's beautiful cities, and enjoys an equable year around climate.

As to transport, both the Spanish railway and highway nets look good on a map, but the facilities are badly in need of repair and modernization. Railroad rolling stock is far below needs both in quantity and quality. Track is generally old, and derailments are said to average about 40 a month. Since the trains move slowly, the accidents are not serious, but cause long delays. The track gage is 5 ft 6 in.

Madrid is the hub of the highway net as it is of the railways. Only a few highways can be considered better than second class, and off of these main arteries they are more aptly characterized as cart paths. Between the larger cities, good highways are maintained, and they are adequate for cars and buses but would break up under truck traffic.

Only about 5% of Spain's roads are 30 ft wide, while 80% are 20 ft or less. A five-year plan of improvement to cost some $60 million was begun in 1950. It is being directed to 6,600 miles, or about one quarter, of the national route system and involves widening narrow roads to a

SPAIN:

Total of 110,000 vehicles is highway use factor, but power supply is adequate; people friendly

uniform 23-ft roadway, the elimination of some railroad crossings and the building of some bridges. The surfaces are asphalt.

Spain is crisscrossed by bus routes, which reach the smallest hamlets. There are over 7,000 buses whose routes total some 54,000 miles. Many of the buses are held together by wire and string, but there are some modern ones that operate between the large cities. These buses, together with 60,000 passenger cars and 50,000 trucks, constitute the total highway rolling stock for this country of 28 million people.

Spain's electric power is predominately hydro-generated. In 1950, a year still affected by the five-year drought that the country suffered, hydro-production was 5 billion kwh. Last year it went up 6.6 billion kwh, and is claimed that 10 billion kwh could be generated in a good water year with the existing installed capacity.

The fact is that Spain's hydro installations are modern and adequate to her needs—a statement that cannot be made about any other segment of her economy—but droughts and variable river flow have to be counted on to reduce the output. From August to the late fall rains, power supply is apt to be short. Then the lack of an efficient national grid shows up. For whatever bearing it may have on our base building, however, two of the three main transmission nets serve the areas involved. One of these runs eastward from Madrid to Valencia and on to Cartagena, while the other is located in the southwest centering on Seville and extending to Cadiz. The third net, and the largest one, parallels the base of the Pyrenees from Barcelona to the industrial area around the Bay of Biscay.

For other data of the general economic nature, the most recent and authoritative publication is "The Economy of Spain" by Sidney C. Sufrin and Franklin A. Petrasek, available from the Foreign Policy Association, 22 E. 38th St., New York, N. Y. for 35 cents.

• **Conclusion**—These then are the facts about our next great projected foreign construction program, as completely and as accurately as they can be assembled after two weeks of traveling and questioning in Spain. During that time not only were none of the darker aspects commonly associated with totalitarian governments encountered, but the general atmosphere was of a country working cheerfully at its job. Moreover, anyone can travel anywhere that he chooses, use a camera as freely as he desires and talk to anyone on any subject that he chooses.

On the personal side, Americans who come to Franco's Spain to work will have a pleasant and rewarding time. On the business side they probably will encounter difficulties and red tape, but these will be no more onerous than those of other countries, including perhaps our own.

How, and under what circumstances Americans will come, awaits the signing of the agreement. Right now there is confidence that this momentous move is not far off. But there have been other optimistic periods during the last year and a half, and the pens have failed to reach the paper. If they do reach it this time, American aid and construction practices will find expression in yet another country that needs them badly. If they fail again, the question mark after the title of this article will have been justified—and we may have lost an ally who opposes Russia's imperialistic communism as fervently as we do and may have given up a military base that might well avert another war or prove decisive in winning one if it occurs.

Tilt-up lift-slab job speeded by fork-lift truck

Fork-lift placement of walls was the novel feature of a combination tilt-up and lift-slab in Whittier, Calif. The building, a 10,200-sq ft laboratory for American Potash & Chemical Corp., was designed and built by The Austin Co.

Standard lift-slab methods were used to raise the roof, in three sections of 4,000 sq ft each. The 8-in slabs weighed about 200 tons apiece, and were lifted at 12 pick-up points.

All exterior walls were tilt-up, as were about 30% of interior walls (all those designed to withstand earthquake shear).

Austin worked out a new method of placing wall slabs for this building, using a 10,000-lb fork-lift truck. The slabs were cast with rectangular holes at the base to fit the forks of the lift-truck. A truck crane picked the slab off stacks outside the building, carried them to the lift-truck at the edge of the flooring. (Because of its wheels the lift-truck couldn't venture out onto soft ground.) Two riggers helped to slip the slab holes over the forks. The lift-trucks then drove to the proper place, and positioned the slab with the help of chalklines on the floor.

Chief reason for the fork-lift was the use of tilt-up for interior walls, and the fact that most exterior walls are set back under a 6 to 10-ft overhang. The crane delivered the slabs to the fork-lift at a point where there was no overhang—but the method could have been used if the overhang had been continuous, simply by building a runway for the fork-lift.

FORK-LIFT carried slabs to position in wall. Contractor had trouble finding a fork-lift with 10,000-lb capacity without too-high frame in front.

Ceiling height of the building is 10 ft. Wall slabs were cast 9 ft 10 in. high, and the 2-in. space between walls and ceiling drypacked with grout. Austin believes that a better method may be worked out: lifting the roof above its final level, installing the walls, and lowering the roof against them.

Lifting the roof took three work days, one for each section. Walls took four working days, although Austin estimates two days would have accomplished it had there been no interruptions by rain.

Roof slabs were cast to leave 2-ft strips between them when lifted into place. Steel in the slabs was tied together with welded bars, and poured concrete filled the gaps. Cost of the building was substantially below $10.00 a sq ft.

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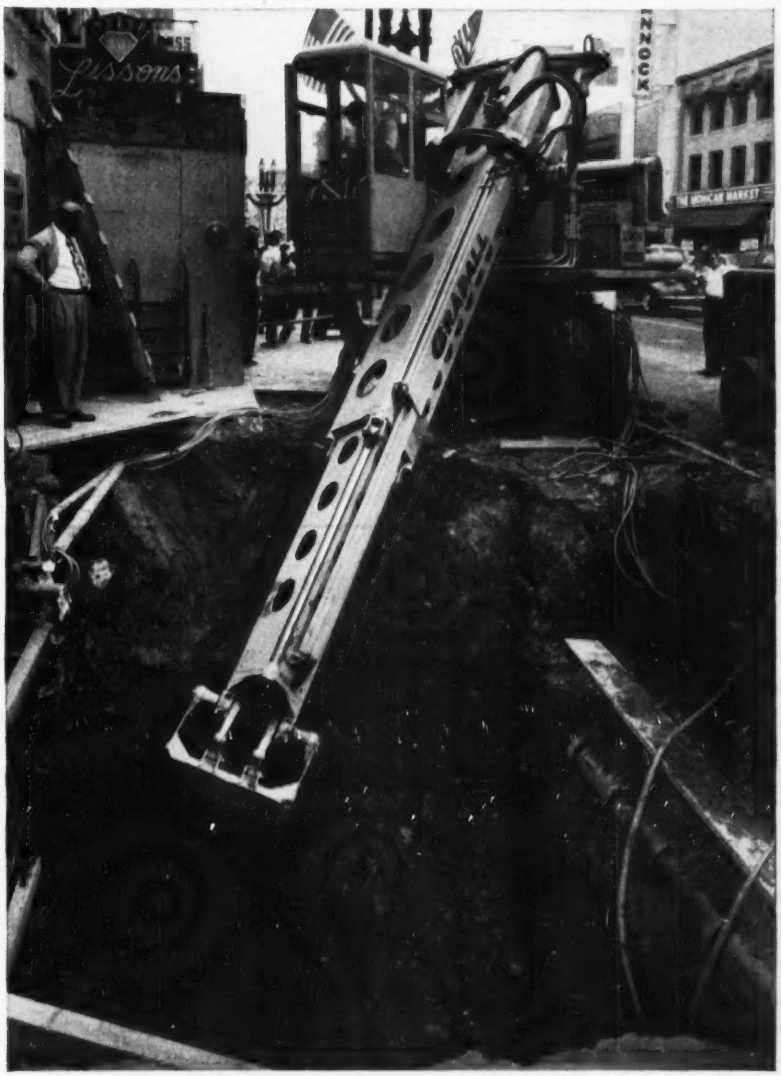

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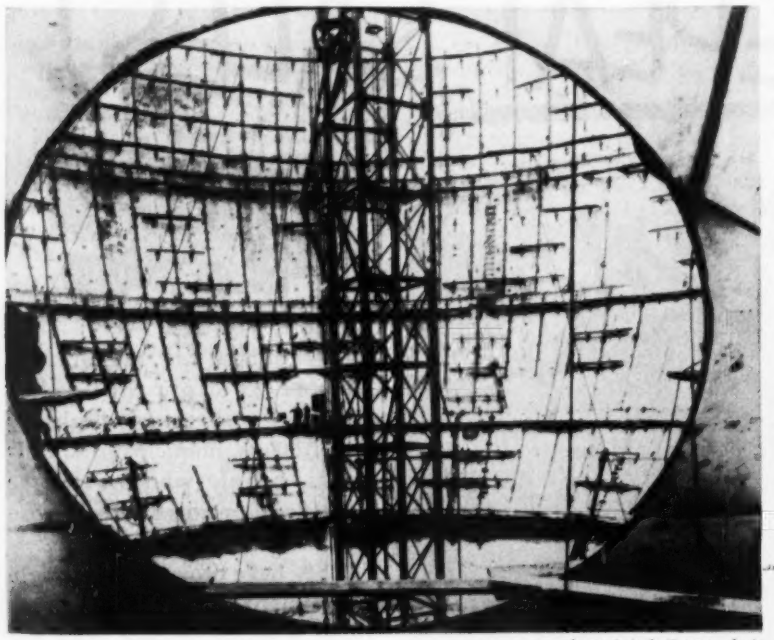


Associated Press photo

Atomic ball

Entry to 225-ft dia steel sphere, by far the largest ever erected, will be through spherical lock in this circular opening, which permits interior view of assembly of 9x32-ft steel plates one inch thick on opposite side of sphere. The big ball, which will house experiments on the atomic submarine, is near Schenectady, N. Y. It was described in ENR April 9, p. 32.

Roosevelt Field

Roosevelt Field, Long Island, N. Y., no longer an airfield, is now being developed as an industrial center. First projects are the new plants (below) of the Arma Corp. and two buildings for the Fairchild Aircraft Co. The field was the take-off site for Charles A. Lindbergh's now-famous flight to Paris. Date: May 20, 1927. (See p. 62 for story on Long Island industrial expansion.)

Brennan photo

ENR photo by Compton

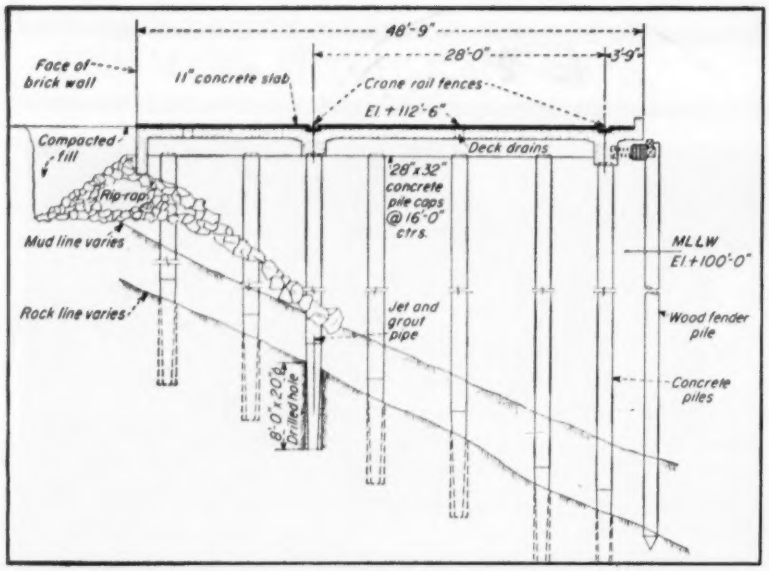
One of Greater New York's "Seven Wonders" voted by ASCE

Members of the New York Metropolitan Section of the American Society of Civil Engineers were asked recently to select their area's "Seven Wonders" from an engineering standpoint. Results of their voting put George Washington Bridge at the top of the list. The other six selected were: The Brooklyn Bridge, the Empire State Building, the city's subway system, its water supply system, the Holland tunnel and the Brooklyn-Battery tunnel.

Floating nightmare

Assigned the task of eliminating troublesome water plants from the lake at Camp Pendleton, Calif., Marine Sergeant R. J. Farrell (attached to Engineer Section, Post Maintenance) took to sea in a lawn mower. Farrell obtained a tractor mower, removed the wheels, attached the knives to the rear axle, mounted the unit on a raft and fastened a 22-hp outboard motor on the rear for maneuverability. The strange craft, listing slightly cuts the weeds 6 in. below the water surface, causing the hollow-stemmed plants to drown.

U. S. Marine photo



(Fig. 1) CROSS-SECTION of wharf showing how concrete piles were placed in holes drilled 8 ft into a steep rock slope and back-filled with sand. Some 380 piles, 18 in. square, were used for the 626x49-ft wharf at Crockett, Calif.

Piles placed in drilled holes are used to hold new wharf on steep slope

A new wharf on San Francisco Bay is anchored on a steep rock slope by placing concrete piles in predrilled holes. The holes were kept open between drilling and placing operations by back-filling them with coarse sand.

The new facility, scheduled for completion in August, replaces an existing wooden wharf at the Crockett, Calif., refinery of the California & Hawaiian Sugar Refining Corp. The installation is located on the steep sloping southern bank of the Carquinez Straits at the northern end of San Francisco Bay. The underwater rock side-hill is covered with from 3 to 10 ft of bay mud.

An alternate procedure might have been to drive steel H-piles far enough into the rock to gain a foothold. But, at the time the project was bid, steel was an allocated material. And some form of encasement may well have been indicated. Accordingly, concrete piles were adopted.

To provide a foothold for the concrete piles, they were placed in holes drilled in the rock. Result is a wharf that is considered superior to a structure supported on steel piles because of the positive nature of the anchorage, and the engineers have good reason to believe the cost is only slightly higher.

The major problem solved by the designers—Earl & Wright, San Francisco consulting engineers—was how to keep the holes open between drilling and pile placing operations. Drilling the holes and placing the piles could not be a simultaneous operation because of the slowness of the drilling procedure. Thus, the need for some means of keeping the hole open.

The holes were cased as they were drilled. Then, after the muck had been bailed, the holes were filled with sand and the casings withdrawn.

The holes were drilled 20 in. in diameter and 8 ft deep. The more than 200 piles used were 18 in. square tapering the last 10 ft to a 10-in. square point. Inside the piles was a 3-in. dia pipe for jetting purposes with a nozzle-type nipple at the bottom end. At the top end the pipe came out the side about 4 ft from the top.

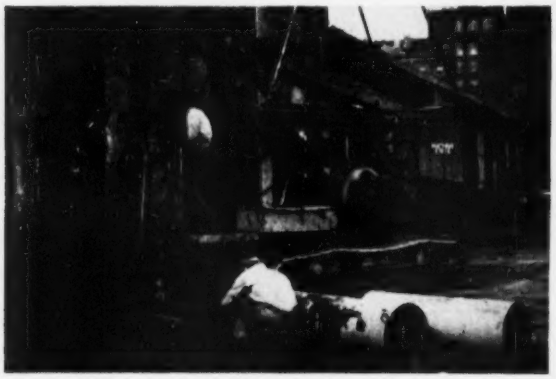
The piles were jetted into the holes with water. A single-acting steam hammer was available but seldom used.

The holes were then blown out with air. Following this a grout mixture was pumped through the pile in sufficient predetermined quantity to fill the space between the pile and rock. This usually took 9 cu ft per hole. Grouting was done by Intrusion Prepakt Co., Inc., using its material. Sometimes the grouting caused uplift of the piling. In such case they were driven to refusal before the grout set up.

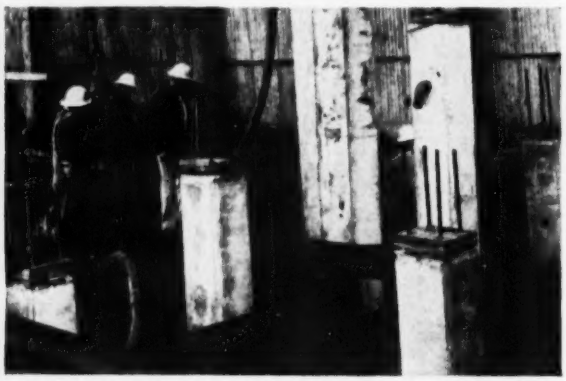
The only other unusual feature of this wharf was elimination of the batter piles normally used for such a structure. Because of the steepness of the rock slope it appeared difficult if not impossible to place such piles for thrust resistance. Accordingly, reinforced-concrete beam tie-backs were attached to the wharf with each anchored to a separate deadman cast in the ground on shore. Some 15 such ties were used.

Resident engineer on the work for Earl & Wright is Douglas Woodard.

General contractor is The Duncanson-Harrelson Co. of Richmond, Calif. Robert F. Dashiell is superintendent-engineer for the contractor and Anton Grevstad is general foreman.



(Fig. 2) DRILL OPERATES on old wooden wharf that is being replaced. Holes were cased and bailed as they were drilled and back-filled with coarse sand, after which the casings were removed.



(Fig. 3) PILES WERE JETTED through the sand into the predrilled hole. Method of keeping the hole open between drilling and pile placing operations is unique feature of this construction.

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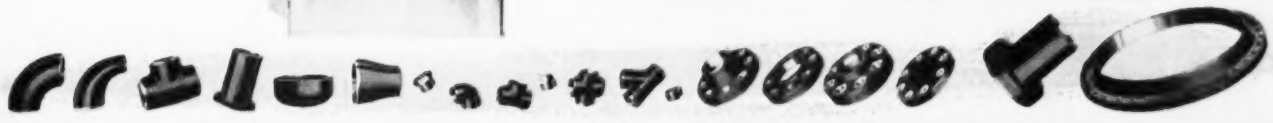

Making Land
IN A LAKE

WITH
McKIERNAN-TERRY PILE HAMMERS

To drive steel piles in the varying depths of Lake Michigan, a McKiernan-Terry No. 9-B-3 Double-Acting Pile Hammer was used on a floating rig. After the four-sectioned wall was formed, batter beams were punched down next by a McKiernan-Terry 10-B-type Pile Hammer. As many as 66 individual sheet piles were driven to depths up to 70 feet on this job in a 12-hour period. • Powerful, fast driving, safe-to-operate McKiernan-Terry equipment is available in 17 sizes of hammers and extractors. • **Write for free bulletin.**

A McKiernan-Terry 10-B-type Double-Acting Pile Hammer drives 61-foot batter piles into a section of the wall used to enclose new-made land on Lake Michigan. The extension of the Northerly Island Airport in Chicago was handled by the Great Lakes Dredge & Dock Co. contractors.

McKIERNAN TERRY

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Available in a variety of designs and in capacities of 300 to 1500 tons per hour. Exceptional durability proven by installations in service for half a century. Simple controls afford convenient, comfortable and speedy operation.

GRAB BUCKETS

Range of types and sizes take bulk materials loads up to 25 tons. Ruggedness without excess weight.

HONING UP TO 42-IN. I.D. X 55-FT. LONG

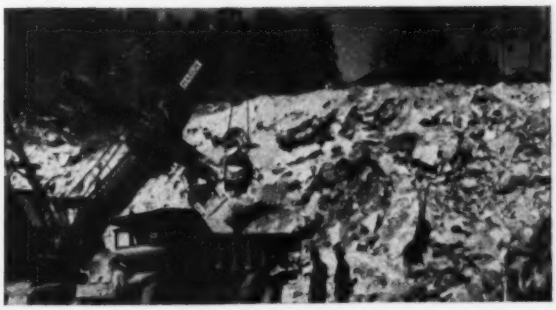
Typical of the extensive facilities of McKiernan-Terry for unusual jobs.

McKIERNAN-TERRY CORPORATION • MANUFACTURING ENGINEERS • 13 PARK ROW, NEW YORK 38, N. Y.

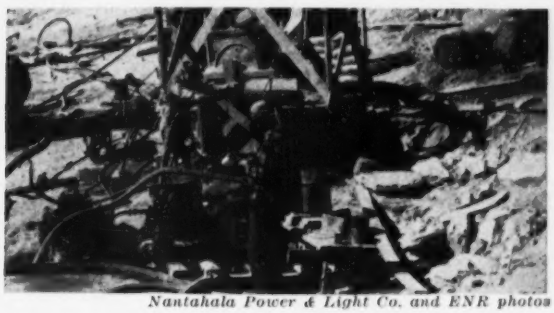
Plants: Harrison, N. J. and Dover, N. J.

MK 288 A

HIGH-PRESSURE JET washes down rock-fill fines, affording better contact among larger rocks in upstream toe of Bear Creek Dam. Coffer-dam in foreground.



QUARRY FOR ROCK FILL—Contractor cuts rock for spillway, loading it for short haul to Bear Creek Dam.



Nantahala Power & Light Co. and ENR photos

GROUTING OPERATIONS close up seams in rock under impervious blanket at upstream face of Bear Creek Dam.

Wringing out the last kw

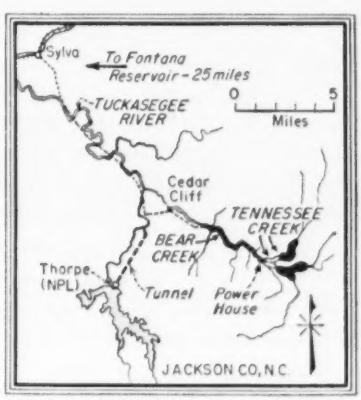
Hydro subsidiary of Alcoa reaches far into headwaters for extra power. Dams must be inexpensive if they're going to pay

ROCKFILL DAMS AND UNLINED TUNNELS make it economic for a private hydro power company in the Tennessee Valley to approach full use for water. The company is Nantahala Power and Light, a subsidiary of Aluminum Company of America. Until a year ago NPL had six hydro dams on tributaries of the Little Tennessee River, above TVA's Fontana reservoir in western North Carolina. In August, 1952, Cedar Cliff, the first of three more projects, went into service. The second is Bear Creek, now being built; the third is Tennessee Creek (a two-reservoir project) for which the diversion and penstock tunnels are being driven.

Generated power will be fed into the Tennessee Valley Authority system. Aluminum Company of America is a big TVA power customer at Alcoa, Tenn., 100 miles westward.

Designed on principles developed by J. P. Growdon, former Aluminum Co. chief hydraulic engineer (ENR Jan. 22, 1952, p. 35), the new dams range in height from 140 to 223 ft. The generator at Cedar Cliff has a rating of 7,500 kva. Bear Creek capacity will be 10,000 kva, and Tennessee Creek 12,000 kva. Each is expected to generate power about half of the time.

The first two projects will include a single dam with combination diversion-penstock tunnels under an abutment. Tennessee Creek, to cost $4 million, is somewhat more complicated, consisting of two dams, each about a mile upstream from the confluence of two streams. The powerhouse will be at the confluence, receiving its water from a diversion tunnel that in plan looks like the letter Y. The outspread arms reach to intake points above the two dams, conducting water to the junction and downward to a 2,400-ft pipeline leading to the power house. Total tunnel length is 4,860 ft. Dams are 140 ft and 180 ft high, but head at the powerhouse is 520 ft.



HEADWATER DEVELOPMENT—Four reservoirs (shaded) are in present program by private capital to increase hydro power yield in Tennessee River tributary.

• **Highest dam**—Bear Creek Dam, now under construction at a cost of $2.7 million, is the highest of the dams. Its 223-ft height, combined with a crest length of 800 ft, will give it a completed volume of 1,000,000 cu yd. Over three-fourths of this material is quarry-run rock, taken from a spillway channel in the right bank.

Impervious material, placed as a tapered blanket near the upstream face, amounts to 150,000 cu yd, and 65,000 cu yd of crushed rock acts as a filter to prevent migration of impervious. Main rockfill is placed to the dam's natural slope of about 3 on 4, both downstream and upstream. The clay blanket thickness varies from 10 ft to 40 ft normal to the slope, top to bottom. Finished slope of the lower part of the upstream rock blanket is

(*Continued on page 54*)

High-speed, high-capacity hauler on Lexington Dam—a 225-HP Caterpillar DW20 Tractor with No. 20 Scraper. Travel speed—20 m.p.h. Load—20 cu. yd. heaped, 15 cu. yd. struck.

How Atkinson raced winter to complete Lexington Dam

An important step in the Santa Clara Valley Water Conservation District's program was taken with the completion of the new Lexington Dam. On Los Gatos Creek just north of the old town of Lexington, California, it is designed to eliminate floods and restore the falling water level of this highly productive agricultural valley. Annual wastage from the creek has averaged more than 27,000 acre feet. The dam, with a storage capacity of 25,000 acre feet, makes it possible to salvage nearly all this wastage.

The $1,433,310 Lexington Dam is an earthfill structure, 175 feet high with a top width of 50 feet and a maximum thickness through the base of 1,200 feet. The project really involved two earthmoving projects of about the same size. Before construction could be started on the 2,000,000 cu. yd. dam, it was necessary to relocate 1.77 miles of the Los Gatos-Santa Cruz highway around the dam. This contract, with the State Division of Highways, was about $1,400,000 and involved moving 2,000,000 yards of highway fill, more than half of it in one fill 800 feet long with a maximum depth of 135 feet.

BIG YELLOW FLEET USED

Major earthmover on both 2,000,000-yard projects for the contractor, the Guy F. Atkinson Company, South San Francisco, was Caterpillar* equipment. To meet tight schedules, the company concentrated on a big yellow fleet of tractors, bulldozers, scrapers and engines, first on the roadway, then on the dam. Here speed was vital, with mid-November, 1952, the target date, to beat winter snow and rains.

Atkinson zoned the equipment. Tracks and 'dozers were used on short hauls. Cat* wheel-type DW20 and DW10 Tractors, with scrapers, handled the long hauls. And motor graders did duty on clearance and road maintenance. The company also took every

advantage of standardization. Both moves paid off in big production with a minimum of down time. And the nearby Caterpillar Dealer, with genuine parts and on-the-spot service, helped contribute to the profitable performance.

Time and again, standardization on Caterpillar units has proved a good investment for contractors. There are many reasons. The equipment is the most *standard* of any earthmoving line. Stamina to stay on the job working is built into every part of every machine and engine. Many parts are interchangeable. Maintenance is simplified. Operator familiarity makes for increased efficiency. And it's a major time and trouble saver to be able to call on *one* source for *all* service.

A Caterpillar D13000 Engine powers this Gardner-Denver Compressor, furnishing compressed air for drilling shot holes. Production: 200 feet of 2½-inch holes per 7½-hour day.

Tough as they come – a Caterpillar No. 12 Motor Grader. More than 9 out of 10 Caterpillar Motor Graders ever built are still on the job.

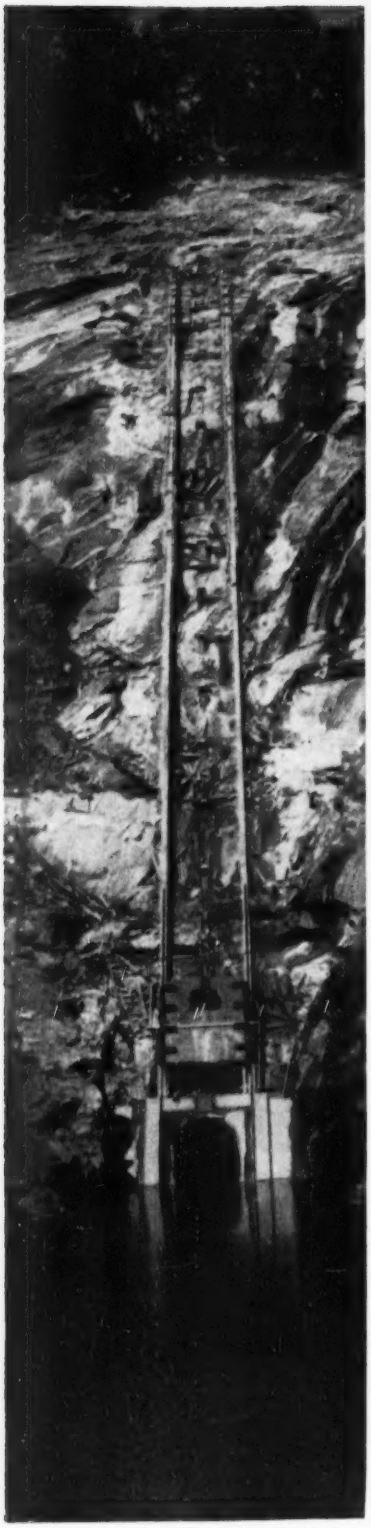
Husky worker–a Caterpillar D8 Tractor with No. 8S Bulldozer does its stuff in rugged going on the dam. The D8 packs 130 HP at the drawbar.

ASK FOR A DEMONSTRATION

For complete information about any unit in the Caterpillar line, see your dealer. Ask him to show you what it can do on your job. Name the date – he'll demonstrate!

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

*Both Cat and Caterpillar are registered trademarks – ®



INTAKE GATE at Bear Creek rides on inclined railroad. A winch at top of slope will handle gate and trash rack, which fits over gate. When gate is raised for storage, the trash rack will remain in position over the intake.

TRUCK-MOUNTED JUMBO for driving Tennessee Creek tunnel has power jibs, three on top, two below. Elevation and swing are hydraulic.

CLEAN FACE—Miners load holes for next blast. Note smooth face broken by short rounds in mica schist.

MUCKER, like other tunnel machines, is diesel engine-powered. Scrubbers on exhaust keep fumes down.

. . . Small dams built in Tennessee watershed

5 on 11, increasing to 3 on 4 near the crest.

In plan the crest arches upstream on a radius of 1,200 ft, its middle ordinate being 62 ft. Original crest elevation varies from 2570 (above msl) at the ends to 2580 at the center, the idea being that somewhat less than ten feet of settlement might take place in the dam's deeper portions.

• **Fuseplug**—The spillway is of a special "fuseplug" design that can be replaced inexpensively. Supplementing the convenient control characteristics of a 25x25-ft tainter gate with its sill at El 2535, the fuse plug consists of a low section 107 ft long and a high section 280 ft long. Both are earthfill dams. The low-section crest varies from El 2561 (sill El 2555) to El 2563 (sill El 2553); the high-section crest varies from El 2562.5 to El 2565, with a sill elevation of 2553. Beyond these control works the spillway is a series of three massive cascades. Total spillway capacity is 60,000 cfs.

• **Inclined gate track**—An unusual design feature is the intake gate and trash rack structure. The intake, which is the upper portal of the diversion and power tunnel, has an inclined face, roughly co-planar with a steep rock bluff above it. Since the intake normally will be about 150 ft below pool elevation, there was a problem of providing a simple and accessible gate. The solution was a rectangular gate riding on a pair of rails that run up the rock face to a winch house. A trash rack also rides the rails, fitting over the gate. When the gate is raised (by wire-rope winch line) and shunted to a storage space alongside the winch house the trash rack can remain in place over the intake.

• **Good rock**—Both the power tunnel and the spillway are on the right bank, where the best rock is available. All rock for fill is coming from spillway excavation, so placement involves only a short haul. The procedure, after site stripping to bare rock and construction of a low upstream diversion dam of rock and impervious material, has been to place an upstream rock toe to El 2435, then to proceed with main rock fill. Meanwhile, the seal-trench area (junction of impervious blanket and natural ground) was grouted, and placement of impervious material was begun.

Blasting for rock fill is done with the aid of a large crawler-mounted rotary drill, propelling a 6¼-in. roller bit. Holes are 60 or more ft deep, conforming to the height of the spill-

(*Continued on page 56*)

GOT A TOUGH NUT TO CRACK?

Chances are your Socony-Vacuum Representative can help you!

Every so often—even in the best of fleets—a tough mechanical problem develops, one that seems to defy solution. It may be bearings going bad without apparent reason or engines suddenly becoming fuel and oil burners. But whatever the problem, you'll find your Socony-Vacuum Representative a mighty helpful friend.

In seeking the solution to your problem, he can draw on Socony-Vacuum's 87 years of experience, its vast research facilities, its staff of lubrication engineers—largest in the industry. He'll give you individual lubrication schedules—advice on correct application of lubricants—recommend the *right* lubricant for every part of every machine.

So, if a problem has *you* stumped, don't wait—call in your Socony-Vacuum Representative.

SOCONY-VACUUM

CORRECT LUBRICATION *for Contractors*

WORLD'S GREATEST LUBRICATION KNOWLEDGE AND ENGINEERING SERVICE

THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL COMPANY, INC., MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

. . . For economy: local materials, unlined tunnels

way cascade "step" on which the drill is working. Holes are spaced at 18 ft on lines 22 ft apart and parallel to the face of the step. A round is fired about once a week. Large shovels (4 cu yd) load the muck into 9-yd trucks for the short haul to the fill. Rock also goes to a crushing plant which is manufacturing filter material.

Main fill is being built out from the abutment at full height, the tumbling and impact action of the pieces on each other providing part of the initial consolidation. Further treatment comes from high-velocity jets of water, which wash smaller particles into the big voids and improve the rock-to-rock contact. Water for this operation comes from a 150-hp, 300-psi pump supplied from the creek above the dam diversion.

• **Grouting**—In the seal trench, primary grouting is provided by a system of 10-ft holes 5x5 ft throughout the area, grouted to 100 psi. This system is supplemented by a single line of 24-ft holes 20 ft apart, in which grout is injected at 150 psi. A few 100-ft holes were drilled with a diamond core bit, and grouted to 300 psi. No hole has taken more than 75 bags of grout.

• **Clay is scarce**—Despite the relatively small amount of impervious material needed for the blanket on a rock fill dam, finding enough to do the job is a problem in the mountains of western North Carolina. It was necessary to haul clay two miles for Cedar Cliff Dam construction. The situation at Bear Creek is somewhat better, a small pit 1,000 ft away having been available for the coffer-dam and the first few lifts in the dam blanket. This pit yielded 10,000 cu yd. Two more, about a mile away on the left and right banks, respectively, are contributing the remaining 65,000 cu yd.

Principal earthmoving, hauling and placement equipment includes two 4-yd diesel shovels, two 2½-yd shovels, 18 9-yd rear-dump trucks, four large bulldozers, two sheepsfoot rollers, one road grader and a light crane.

Fill placement has progressed steadily at 16,000 cu yd (solid) of rock weekly and 2,000 cu yd of clay weekly since filling began last fall. Work on access roads began in January, 1952, and the diversion tunnel was driven between April and September. Reservoir filling will begin in June, with dam operation scheduled for September, this year.

• **Schist is mastered**—The Tennessee Creek project will be completed about a year later. Major work there now is shifting to the dams, because the Y-shaped diversion tunnel is nearly finished. Successful driving through mica schist, considered touchy stuff by tunnel men, has been an important feature of this work.

Dean Simpson, project manager for Harrison Construction Co and an experienced hard rock man, summarizes his success in the schist with two words, "Short rounds." Schist is so soft that there is a temptation to lengthen the rounds. At Tennessee Creek, Simpson choked his depth of drilling to 7 ft, pulling only 6 ft per shot in the 14x15-ft horseshoe bore. The result was a clean-cut tunnel that needed almost no ground support.

The short rounds didn't hurt progress, however. The mountains of this area are home for skilled miners who have worked on big tunnel jobs all over. Whenever there is a good tunnel job here they flock back to it, so the contractor has his pick of the best. It was not uncommon at Tennessee Creek for the men to shoot seven rounds in 24 hours. They got a bonus for footage over 24 per day. Daily average was 38 ft.

• **Truck jumbo**—Machines, too, were good at Tennessee Creek. Spear-heading the operation was a five-drill jumbo mounted on an old Euclid truck. Power jibs carried drifters with 48-in. feed. The jibs elevated and swung hydraulically, the hydraulic power coming from air motors on the jumbo. Feeders had aluminum shells.

Carbide-insert bits gave excellent service, drilling about 500 ft apiece. This meant a new bit for each drill daily. A conventional drilling pattern with 40 to 50 holes was fired with zero and eight delays.

• **Scrubbers used**—After the tunnel had been driven a few hundred feet, the contractor put scrubbers on the exhaust systems of diesel automotive equipment used in the tunnel. A scrubber is a small water tank through which exhaust gases bubble. It cuts the efficiency of the engine somewhat, but it removes a substantial portion of diesel fumes.

In addition to the jumbo, tunnel automotive equipment included three 3-yd rock trucks, called "mules," that drive equally well forward or backward, and a crawler-mounted mucking machine that casts muck backward, over its top. Its bucket is of one-yard capacity. For faster muck haulage the contractor widened the tunnel, providing truck-passing points, every 800 ft. The jumbo also was stored in one of these niches during blasting and mucking.

Muck was easy to handle, because blasting broke it into small pieces, but the heavy proportion of mica made it almost useless as an access road-surfacing material—the use to which the contractor had hoped to put it. A bulldozer kept the muck spread at the dump, which was just outside the lower tunnel portal. All driving was conducted from that end.

• **Portable compressors**—Above ground equipment at the tunnel portal included five 375-cfm air compressors, feeding a common 500-cu ft receiver tank. A 6-in. pipe, reducing to 4 in. led air to the jumbo. Ventilation was provided by a reversible 10,000-cfm 75-hp blower, through an 18-in. pipe. Immediately after a blast it sucked fumes from the face. Then it blew air into the tunnel during the rest of the driving cycle. Other utilities in the tunnel were a 1½-in. water line, a 110-volt light line and a 220-volt blasting circuit. Because this tunnel was driven entirely uphill, there was no need for pumping. The tunnel grade varies from about 1% to 5%. However, the poor roadability of the mica schist muck called for frequent bulldozer invert cleaning, with the mucker loading into rock trucks.

• **Management**—Bear Creek and Tennessee Creek projects are being built by the Aluminum Company of America, for Nantahala Power and Light Co. Design was under the direction of Mr. Growdon until his retirement, then under B. J. Fletcher, chief hydraulic engineer for the Aluminum Company of America. Resident engineer for the owner is John Muhlheizler, assisted by Dick Hayes and Boyd Smelser. Mr. Hayes is in charge of a field testing laboratory that is prepared to make full job analysis of materials in the rockfill dams.

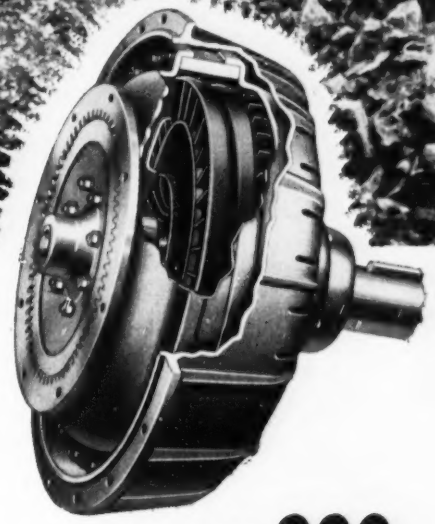
For Harrison Construction Co., Pittsburgh (contractor on both projects), Mr. Simpson is project manager. He is assisted by Marshall Elam, field engineer. George Andrews is engineer for Nantahala Power and Light Co.

Sweden's record power line

The world's longest submarine power line, a 50-mile cable for the transmission of 100,000 volts d.c. from Sweden to the Baltic island of Gotland, will be laid this summer. The $4.5-million cable will augment the local steam generating plants on Gotland, which has no water power resources of its own. This cable will do away with the necessity for building steam power plants in the future.

Shocking

isn't it...



what tough rock like this *used to do* to a shovel?

If you've ever dug rock, you know what it can do to a shovel. But now, there's no excuse for the shocks and impacts of hard rock digging to wear out or break up a shovel before its time. Back in 1940, Thew-Lorain ended all that with the introduction of the Hydraulic (fluid drive) Coupling on the big 2-yd. Lorain-820. Today, it's still the best way to absorb digging shocks and strains — far more effective than any make-and-break mechanical gadget. Shocks and stresses "melt" away before any damage can be done to mechanism or cables. What's more, you can't stall a Lorain-820 engine, either, under any digging circumstances.

The Lorain Hydraulic Coupling is only *one* big feature that makes the Lorain-820 different and better than any other machine in the 2-yd. class . . . and you get this feature as standard equipment. If rock digging is "shocking" to your equipment and your costs, ask your nearby Thew-Lorain Distributor to tell you the Lorain-820 story — and show you proof on the job.

THE NAME THAT TAKES THE SHOCK OUT OF ROCK . . .

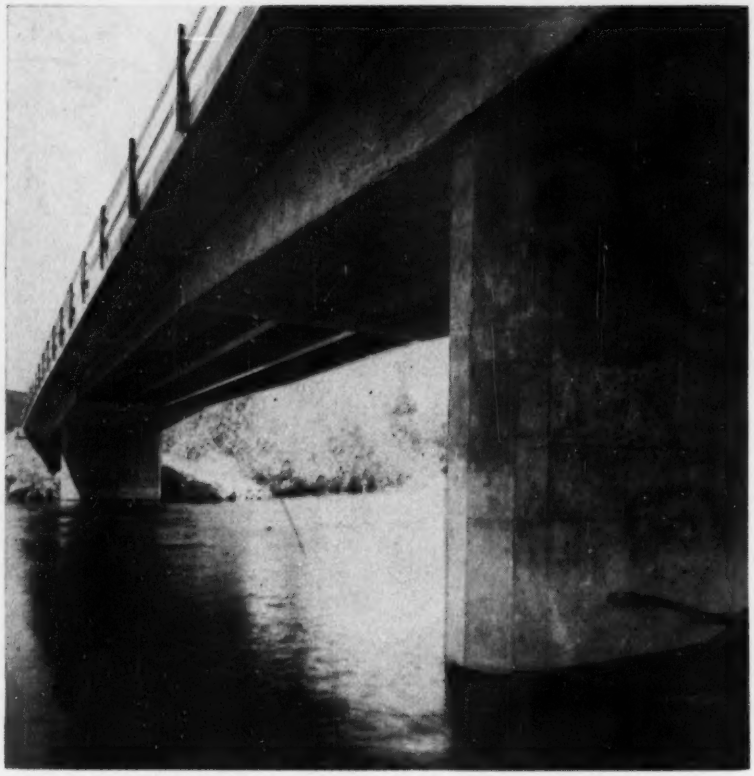
LORAIN 820

Hydraulic Coupling Is Standard

Demand this feature in your next 2-yd. shovel-crane. Whether your machine must take the "shock of rock" or work on the easiest material handling jobs, you'll get s-m-o-o-t-h-e-r, money-saving performance with the Lorain Hydraulic Coupling. Lorain-820's are available on crawler and rubber-tire mountings.

THE THEW SHOVEL CO., LORAIN, OHIO

THE LORAIN



STEEL WF BEAMS FORM central part of 115-ft span bridge. Simple supports for beams with minimum shop and field work lead to low cost of $7.92 per sq ft.

Low cost concrete bridge has simply supported steel span

Homer M. Hadley
Consulting Engineer, Seattle, Wash.

A concrete bridge with part of the central span supported by steel WF beams has been constructed in King County, Wash., for $7.92 per sq ft. Much of the economy can be attributed to simple details of the steel work.

A 115-ft river span was adopted because of the desirability of keeping a goodly portion of the channel open and free of bridge falsework to permit unimpeded passage of drift frequently carried by the stream.

The central 60-ft section of the main span has been constructed with four 36 WF 150 beams as the primary members. Flanking spans are concrete box girders cantilevered a few feet at the inshore end and 27½ ft over the river as part of the main span.

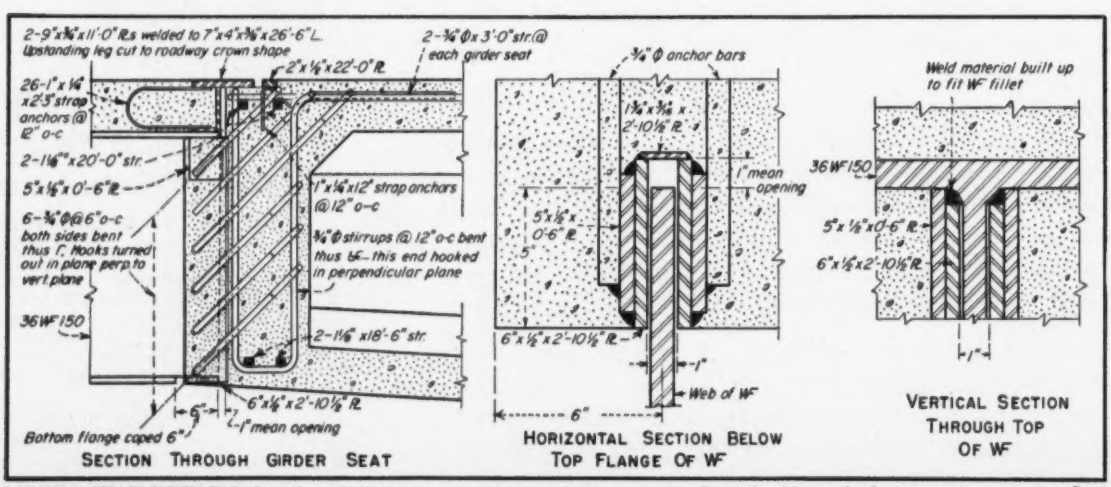
Steel plate assemblies anchored into the concrete at the outer end form slotted seats for the steel beams. The top of the slots are rounded off with weld metal to receive the fillets of the top flanges of the beams at their juncture with the beam web. This provided support for the beams.

Six inches of the bottom flanges were coped off at each end of the beams. This permitted field erection by drawing the beams across the opening and then lowering them into the slots.

Shear connectors of the inclined semicircular plate type are welded to the top flanges. The concrete bridge deck is thus tied to the steel beams, but the beam-supported deck is separated from the concrete box girder supported deck by means of a sliding plate that is part of the beam-support assembly.

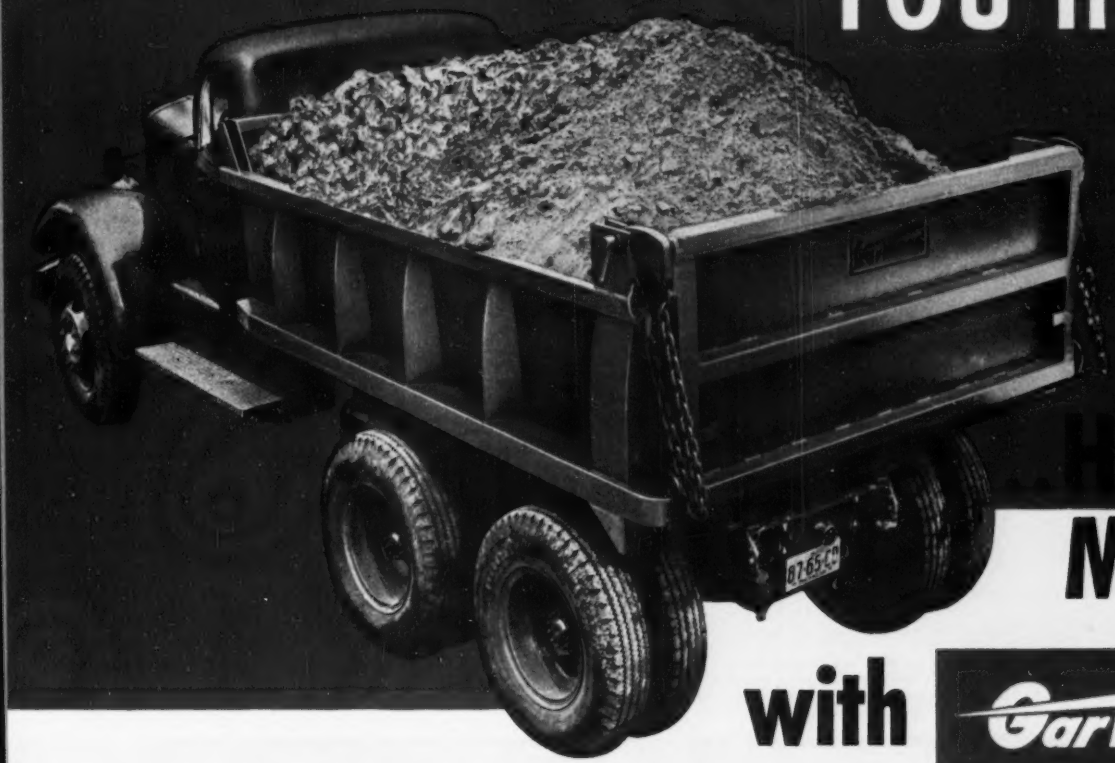
The main span is supported by two river piers—both in water—carried on plain wood pile clusters. The 252-ft long bridge, designed for H15-S12 loading, carries a 22-ft wide roadway with 2¼-ft wide curbs on each side.

Low bid for the work received Apr. 30, 1951, was $61,506.21. Eliminating costs attributable to grading the approaches, the bridge proper cost $52,829.21. Based on overall concrete dimensions, the square foot cost of the bridge was $7.92. This is considered remarkable in these days of high costs. It is considerably less than costs of prestressed concrete bridges that might be comparable.


2-9"x⅜"x11'-0" Rs welded to 7"x4"x⅜"x26'-6" L. Upstanding leg cut to roadway crown shape
2-¾"Øx3'-0" str.@ each girder seat
2"x½"x22'-0" R.
26-1"x½" x2'5" strap anchors @ 12" o-c
2-1⅛"x20'-0" str.
5"x½"x0'-6" R.
6-¾"Ø@6" o-c both sides bent thus ⊓ Hooks turned out in plane perp. to vert. plane
36WF150
1"x⅛"x12" strap anchors @12" o-c
¾"Ø stirrups @ 12" o-c bent thus ⊏ this end hooked in perpendicular plane
2-1⅛" x18'-6" str.
6"x½"x2'-10½" R.
1" mean opening
Bottom flange coped 6"
SECTION THROUGH GIRDER SEAT
¾"Ø anchor bars
1¾"x⅜"x 2'-10½" R.
1" mean opening
5"x½"x 0'-6" R.
5"
6"x½"x2'-10½" R.
1"
Web of WF
6"
HORIZONTAL SECTION BELOW TOP FLANGE OF WF
Weld material built up to fit WF fillet
36WF150
5"x½"x0'-6" R.
6"x½"x2'-10½" R.
1"
VERTICAL SECTION THROUGH TOP OF WF

GIRDER SEAT DETAILS show how WF beam webs fit into slot in concrete formed with steel plates cast in concrete. Last 6 in. of bottom flanges are cut off.

WHATEVER YOU HAUL



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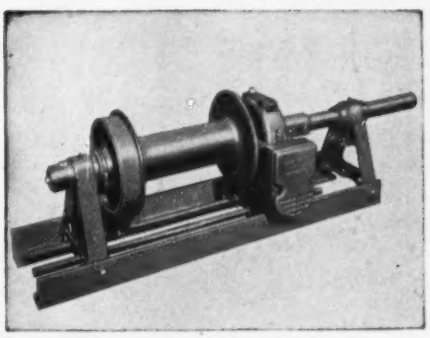


If "pull" is your problem, a Gar Wood winch is the answer. Gar Wood winches are tougher . . . last longer . . . are safer to operate . . . require less maintenance. Self-energizing, automatic safety brake stops and holds any load up to winch capacity yet releases fully without drag. Write for information today.

It's True! Whatever you haul, you can haul more in Gar Wood Bodies *without exceeding legal load limits.* Gar Wood Bodies and Hoists are designed and built to eliminate dead weight without affecting vital strength and rigidity. This combination of minimum weight with maximum strength and rigidity assures extra payload—and extra profits—on every trip.

Box-type tailgate construction, forged steel tailgate pins and hooks, plus horizontal box bracing save dead weight yet put extra strength where it is needed to withstand load concentrations when dumping or spreading. Rear corner posts are extra strong to withstand shock loads and maintain permanent alignment. Rear apron is welded solidly to the corner posts for maximum rigidity. Body panels are reinforced with V-type braces to add extra strength without excessive weight.

There's a Gar Wood Body and Hoist Combination in every type and capacity to meet your every operating requirement. Find out today how you can *put more pay in your payloads* by putting Gar Wood Bodies and Hoists to work on your hauling job. Mail the coupon below NOW!

Gar Wood Industries, Inc.
36008 Main St., Wayne, Mich.
Att'n: Customer Service Dept.

Please tell me how I can increase operating revenues by using Gar Wood Bodies and Hoists.

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

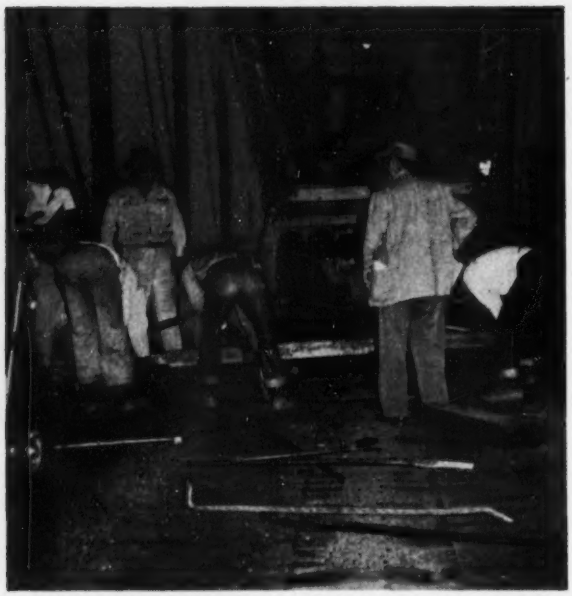
GAR WOOD INDUSTRIES

GAR WOOD INDUSTRIES, INC.

WAYNE, MICHIGAN

TRUCK EQUIPMENT: Dump Truck Bodies and Hoists, Winches and Cranes, Refuse Collection Bodies, Elevating End Gates
CONSTRUCTION EQUIPMENT: Excavators, Scrapers, Dozers, Ditchers, Spreaders, Finegraders, Truck Mounted Road Graders

Reflooring old bridge with saves 131,345



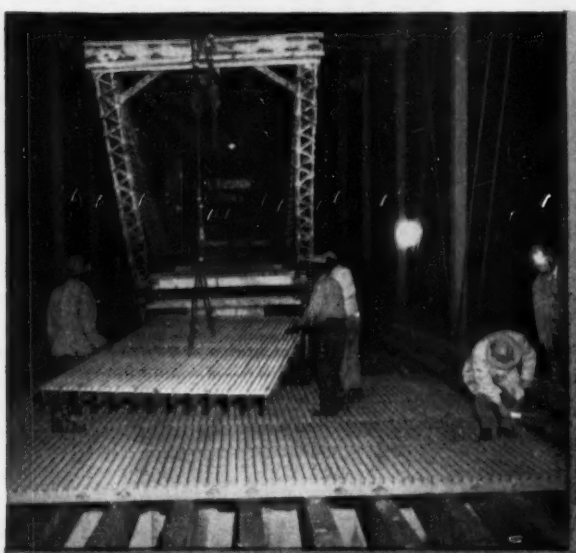
THE OLD FLOOR SYSTEM consisted of 6" x 14" wood stringers, 3" wood decking and four lines of ¼" x 30" steel tread plates. Crew is shown removing the outdated floor in preparation for new I-Beam-Lok lightweight steel flooring.

● From the Louisiana State Department of Highways comes another interesting example of the use of I-Beam-Lok on a modernization job.

The project was the reflooring of the 18' roadway of the 767 ft. long Alexandria-Pineville bridge over the Red River in Rapides Parish. The old timber floor was difficult to maintain under the increasingly heavy traffic.

The problem involved finding a suitable flooring that would not add to the deadweight of the supporting structure, yet would be more permanent, and require less maintenance than the existing floor. U·S·S I-Beam-Lok open steel flooring met all requirements.

The engineers estimate that the new floor system including steel stringers, 14,856 sq. ft. of 5" I-Beam-Lok, steel curbs and concrete fill over the pivot pier weighs only 502,914 lbs. for the entire bridge. Compared with a total weight of 634,259 lbs. for the old floor system it replaced, the savings in weight through the use of I-Beam-Lok is 131,345 lbs.



THIS PHOTO SHOWS temporary positioning of a few I-Beam-Lok units on present wood stringers to allow traffic to flow on following morning. These units to be lifted later for installation of permanent steel stringers on which I-Beam-Lok units are to be permanently welded.

BRIDGE WAS KEPT OPEN to traffic each day from 6:00 a.m. to 10:00 p.m. Vehicles moved safely over the newly laid I-Beam-Lok without interruption as all construction work was done late at night.

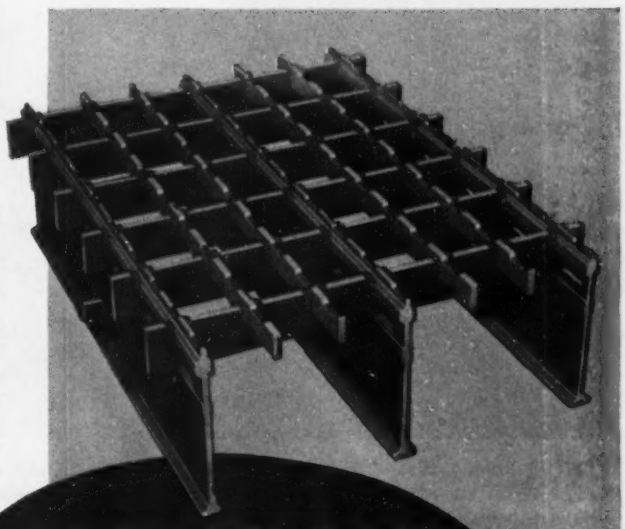
PROJECT: Reflooring of Alexandria-Pineville (Red River) bridge on Routes 5 and 14 in Rapides Parish, Louisiana.

ENGINEERS: State of Louisiana Department of Highways. J. B. Carter, Bridge Design Engineer, Baton Rouge, Louisiana.

CONTRACTORS: Forcum-James Company, Baton Rouge, Louisiana.

U·S·S I-BEAM-LOK

lbs. deadweight



KEPT OPEN TO TRAFFIC

Another important advantage gained through the use of I-Beam-Lok was that the busy bridge was kept open to traffic each day from 6:00 a.m. to 10:00 p.m. while the new flooring was being installed at night.

Available in units measuring 6′-2″ in width and up to 49′ in length, this lightweight, all-steel open flooring with its strong, full 5″ depth can be applied directly to stringers on spans up to 4′ centers to permit H-20 loadings. It does not require secondary supports.

This "modern floor for modern traffic" combines lightweight and reduced costs with roadway rigidity, ease of erection, a smooth, hard surface and low maintenance costs. It is available in both concrete-filled and open types. Our engineers will be glad to discuss its possibilities with you. For more information about U·S·S I-Beam-Lok steel flooring, contact the sales office nearest you.

U·S·S I-BEAM-LOK

the lightweight, long-life flooring for modern traffic

SECTIONS OF NEWLY LAID I-BEAM-LOK were speedily welded together with ordinary field equipment. This lightweight steel open flooring produces a smooth-riding, non-skid, self-cleaning and long-wearing surface.

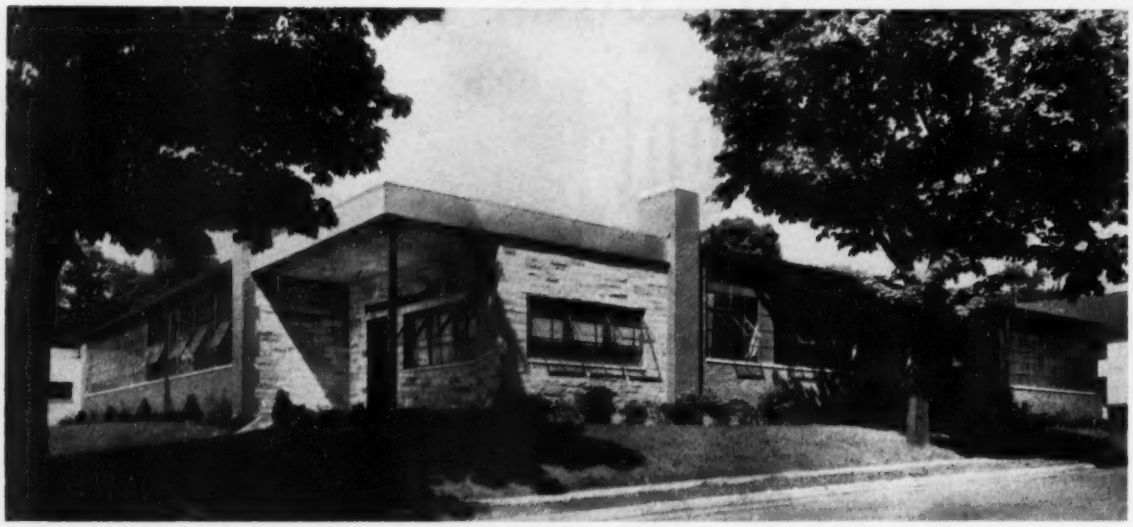
THIS OVERHEAD VIEW of the newly refloored bridge shows the clean open pattern of U·S·S I-Beam-Lok.

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S I-BEAM-LOK

USS

UNITED STATES STEEL



TYPICAL SMALL PLANT is that of the Potter Instrument Co. in Great Neck. Selection of the exterior building materials and landscaping of the grounds were determined by the residential character of the neighborhood.

Contractors and regional association work together as . . .

Cooperation develops new construction

Arnold Smith
Assistant Editor

Combine an aggressive contractor and a far-seeing regional association and you come up with a lot of construction business. It was a tough fight on suburban Long Island, N. Y., at the beginning, trying to build for industry in a predominantly residential area, but it was eventually accomplished and resulted in:

- About $30 million in light-manufacturing-type industrial construction in the postwar period.
- A $300-million manufacturing payroll.
- Over 1,400 diversified industries which provide employment for 98,000 people.
- New and increased prosperity for local merchants.
- Benefits—and problems—for municipalities.

• Big growth—Like suburban areas throughout the country, 120-mile long Long Island's two easternmost counties of Nassau and Suffolk grew at a phenomenal rate following World War II. Today's population is 1,200,000.

In 1940, when they were known as "the bedroom of New York City," the combined population was a little over 600,000. The area was devoted chiefly to farming with many of the residential areas serving people who commuted to New York daily.

Manufacturing in that year was confined to about 450 small plants with a total payroll of $8 million for 7,000 employees.

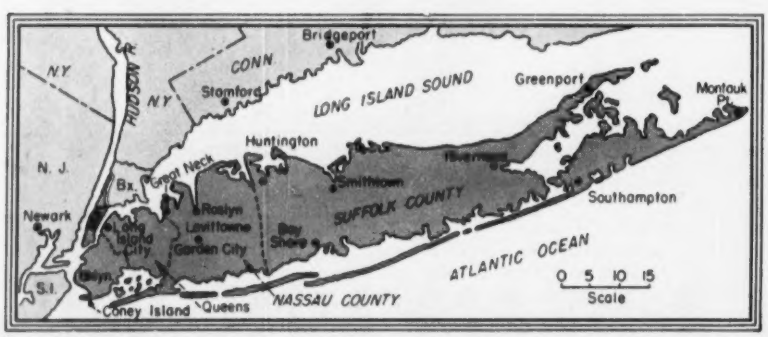
The war put an abrupt end to this almost rural atmosphere. Two aircraft plants—Republic and Grumman—had been on the island, on a small scale, prior to the war. As a result of the tremendous demand for aircraft and related equipment, the two plants expanded by leaps and bounds—and tagging along were thousands of new workers.

• Postwar problem—When the war was over, workers, municipal officials, and old-time residents looked around and with what must have been one voice said: now what?

Returning veterans added to the problem. They came back looking for jobs, took on family responsibilities and hunted for a good place to live away from the crowded city.

The housing boom started. More people moved out to the island. Railroad transportation became jammed and highways were crowded with those trying to avoid packed trains.

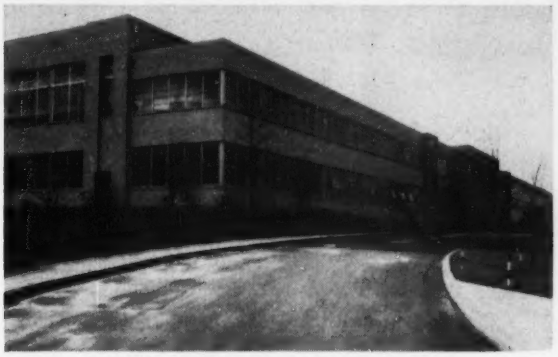
One solution was obvious. Why not move industry to the island? Here, in one step, would be the answer to all the problems. New plants would help take up the tax burden that plagued all municipalities caused by the construction of new schools, utility expansion and the increase in the public



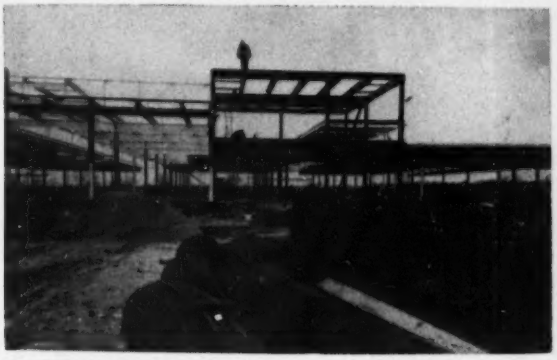
LONG ISLAND is shaped like a whale with nose pointed at—and including part of—New York City. Brooklyn and Queens are New York boroughs.

LARGE PLANT maintains clean look necessary for acceptance by local residents. This is the General Bronze Co. near Garden City.

SMALL INDUSTRY is represented by the Empire Tool Products Co., also near Garden City. Working here beats commuting.



HELENA RUBINSTEIN cosmetic plant—near Roslyn—is sweet-smelling. Ad for workers brought out 1,500 in one day.



LIGHT FRAMES are used in most of the buildings. Construction is simplified by easy excavation.

services required. Workers would not have to travel all the way to New York—thus alleviating the traffic problem—and a good deal of the money they spent in New York on personal purchases, would be funneled to local merchants.

(As it turned out, it wasn't all gravy for the municipalities. The plants brought traffic problems, and in some cases, industrial wastes were of real concern. Municipal officials will agree, however, that the benefits outweigh the troubles.)

• **Fight begins**—The solution may have been obvious—but not to everyone, including most of the residents of the island.

They were strongly determined to defend the residential character of the area and fought all attempts to rezone land for industrial use. Land that was zoned for industry was generally located along railroad tracks, in the most depressed areas, and was not attractive to companies seeking to improve working conditions by moving. There wasn't a 15-acre plot to be had.

Efforts to change zoning were handicapped by the political geography of the island. For instance in Nassau County there are 64 incorporated villages, 3 townships and 2 cities, each one of which has its own zoning laws.

It was here that two organizations—the Long Island Association and a New York construction firm, Brown & Matthews, Inc.—took over.

FREDERICK A. BICKEL heads Brown & Matthews, Inc. He has continued aggressive leadership of the organization's founder, Harry Matthews.

• **Association starts**—The association was conceived in 1926 as sort of a regional chamber of commerce to promote the whole of the island, including the boroughs of Brooklyn and Queens.

From its first home in Pennsylvania Station, the group handled a range of problems from sponsoring improvements of the highway system to answering questions on the price of eggs. The eastern end of the island was considered ideal for summer resorts and was so promoted. Sponsors of the program then were the Long Island Railroad and local banks.

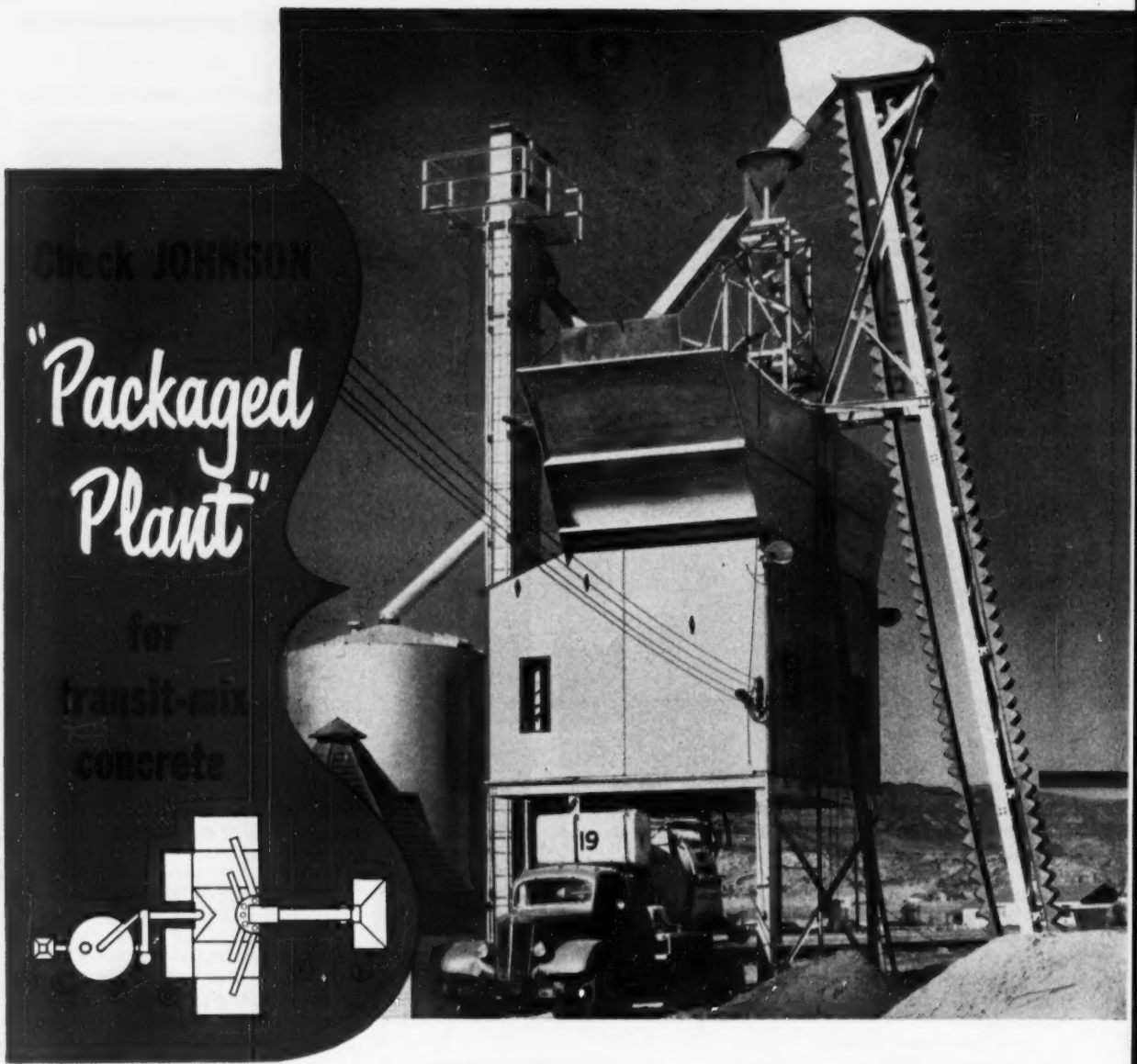
In 1949 it was obvious that the major work of the association—now devoted principally to planning and promotion—was moving eastward so the association went along and set up a new shop in Garden City, Nassau County. This year also marked the formation of the Industrial Council, made up of leaders in business, education, utilities and government, and dedicated to getting industry out to the island.

(Continued on page 67)

Check JOHNSON

"Packaged Plant"

for transit-mix concrete



Specially developed for low-cost production of transit-mix concrete, this plant is a typical example of Johnson "complete-package" engineering. Plant is fully Johnson-equipped. Every function, from receiving and storage of materials to final weigh-out, is carefully co-ordinated for fast, accurate operation. Here's how it works:

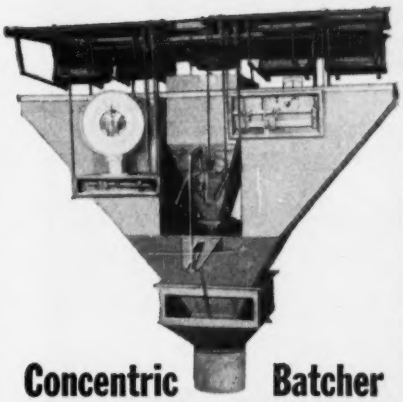
Truck-receiving hopper (A) feeds cement into a screw conveyor, which carries the cement to enclosed bucket elevator (B). 275-bbl.-per-hour elevator fills an all-welded, 520-bbl. storage silo (C), or directs the flow of cement as needed into central compartment of plant bin (D). Aggregates are received at truck-unloading hopper (E). An open, inclined elevator (F) feeds the aggregates into a pivoted distributor, mounted at top of bin. Johnson welded tandem bin provides total overhead storage capacity of 110 cu. yds. for immediate plant use. Bin consists of four 19-yd. aggregate compartments, and a centrally-located, 250-bbl. cement compartment. On batcher floor, below bin, 2 cu. yd. Concentric Aggregate-Cement Batcher, and a Johnson water batcher accurately weigh out materials, and discharge into transit-mix trucks.

For any transit-mix, central-mix or concrete products operation, large or small, it will pay you to check the efficiency of Johnson plants and accessory equipment. See your Johnson distributor soon, or write us.

C.S. JOHNSON COMPANY

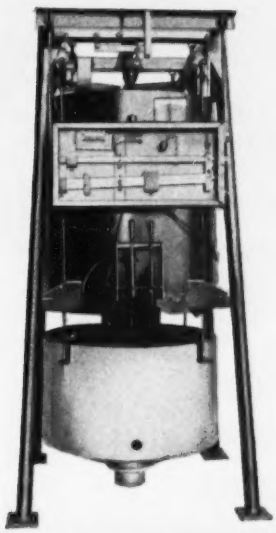
CHAMPAIGN, ILLINOIS • (Koehring Subsidiary)

CJ334



Concentric Batcher gives central cement feed

In this exclusive Johnson Concentric Batcher, aggregates are arranged concentrically around cement . . . prevents "gumming". Cement is weighed on separate scale; aggregates are weighed on accumulative dial scale, or on individual beam scales. Sizes: 2 to 6 cu. yds., can be arranged for 2 to 8 aggregates, plus 1 to 4 types of cement. Fully automatic, air-ram operated . . . or semi-automatic . . . or manual controls.



Johnson Water Batcher

increases mix plant efficiency . . . gives close quality control of concrete. Accuracy is not affected by changes in water temperature. Capacities: 120-gal. (1,000 lbs.) for batches up to 3 yds., and 240-gal. (2,000 lbs.) for batches up to 6 yds. Either semi- or fully-automatic types available.

Latest 16-S Dandie concrete mixer, interchangeable side or end discharge, has adjustable double-contact skip shaker, automatic water system, 3-point suspension mounting on heavy coil springs, cast steel drum heads with machined roller paths. Also, exclusive remixing action, and 8-second discharge with tilted Flow-Line Chute. Other models: 3½-S, 6-S, 11-S . . . bituminous, plaster-mortar mixers, power wheelbarrows.

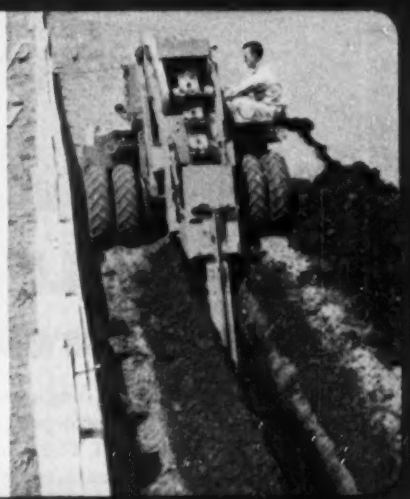
KWIK-MIX *(Koehring Subsidiary)*

Port Washington, Wis.

Rubber-tired Trenchmobile drives job-to-job at 12.6 m.p.h. . . . digs 8 or 12 in. wide, 5 ft. deep, up to 17 ft. per min. Sloping ladder boom makes vertical set-ins, undercuts sidewalks, curbs, old mains. Other features: hinged crumber, "Tap-In" digging teeth, reversible conveyor, optional backfill blade. Also ask your Parsons distributor about the 2 wheel-type and 3 ladder-type Trenchliners® . . . all full crawler mounted.

PARSONS *(Koehring Subsidiary)*

Newton, Iowa

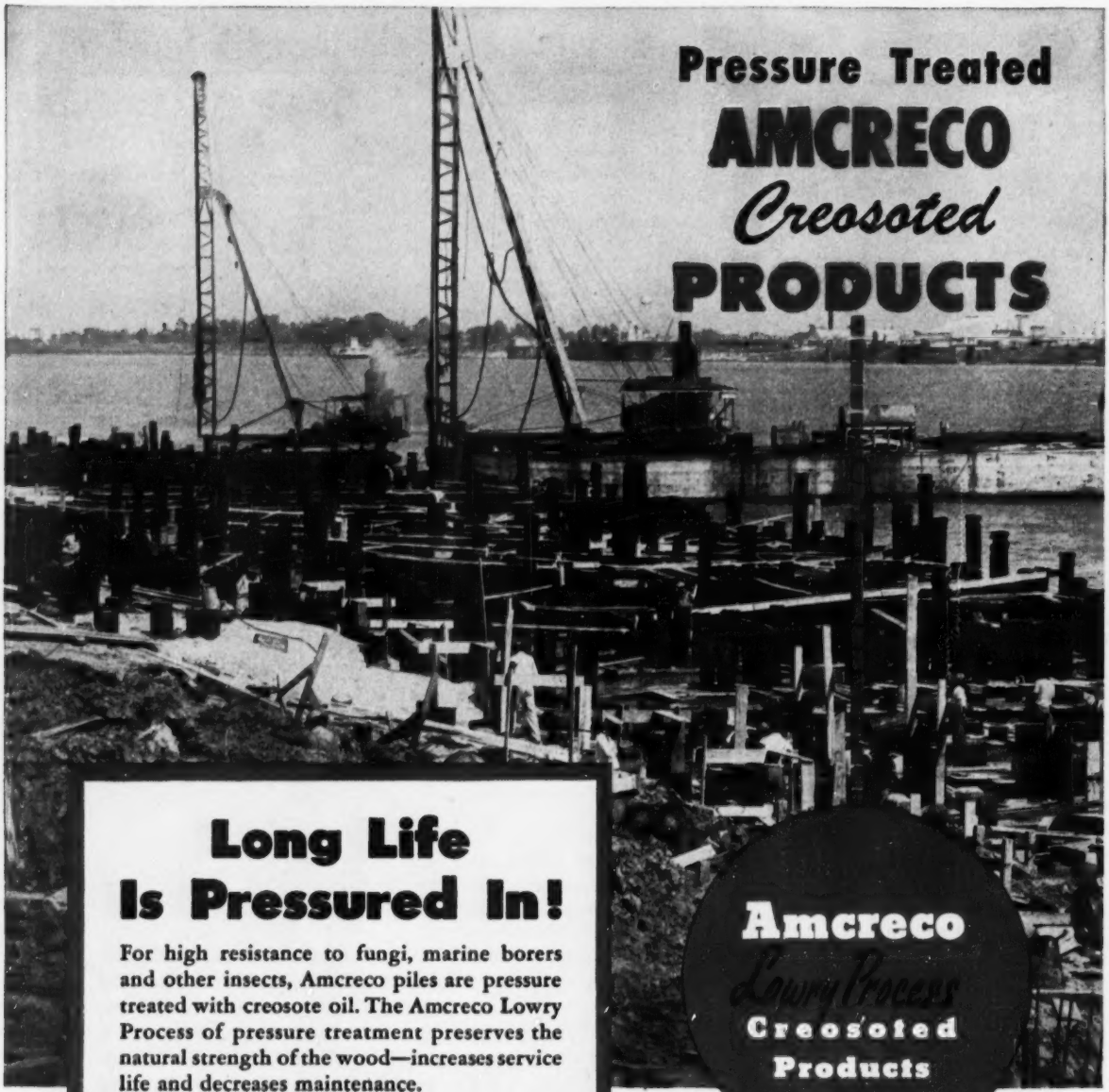


With more than a ton of strength for every ton of payload capacity, Koehring 6-yard Dumptor withstands severest loading shocks. Sides, end and double-strength bottom are heavily rib-reinforced. Stationary or free-swinging kick-out pan adds another ½" steel plate to heavy-duty bottom. Gravity dump eliminates body hoist maintenance. 1-second dumping speeds haul cycles. Also check Dumptor fast no-turn shuttle hauling.

KOEHRING COMPANY

Milwaukee 16, Wis.

Y65



Pressure Treated AMCRECO *Creosoted* PRODUCTS

Long Life Is Pressured In!

For high resistance to fungi, marine borers and other insects, Amcreco piles are pressure treated with creosote oil. The Amcreco Lowry Process of pressure treatment preserves the natural strength of the wood—increases service life and decreases maintenance.

In addition to the high quality of Amcreco Creosoted Products, nearly fifty years of treating experience plus strategically located facilities mean lower overall costs and better service for you. For piles and structural woods that last, specify Amcreco on your next job.

Photo above—*Amcreco piles being used in construction of the Napoleon Avenue Wharf, New Orleans, La. We have supplied creosoted piles and structural timbers to the Port of New Orleans for many years.*

AMERICAN CREOSOTING COMPANY

COLONIAL CREOSOTING COMPANY INCORPORATED

AMCRECO LOWRY PROCESS

GEORGIA CREOSOTING COMPANY INCORPORATED

GENERAL SALES OFFICE—CHICAGO, ILLINOIS
38 FIELD SALES OFFICES TO SERVE YOU

Amcreco *Lowry Process* **Creosoted Products**

PILES
FRAMED BRIDGE TIMBERS
PLANK
CONDUIT

Pressure treated for ***Strength that lasts!***

The approach was mostly educational. All the members chipped in to make speeches before civic and service groups—such as the Lions and Kiwanis—outlining the benefits of light industry and showing that properly selected industry wouldn't be a nuisance.

In the fall of 1949, the association promoted an Industrial Exposition on the site of the former airport, Roosevelt Field. Most of the companies then established on the island had booths with exhibits of their products. Executives of the companies were available to answer questions.

This was a tremendous success. Over 400,000 people attended and learned what local industry was doing.

Again in 1951, the association sponsored an even more successful show—attendance was over 450,000.

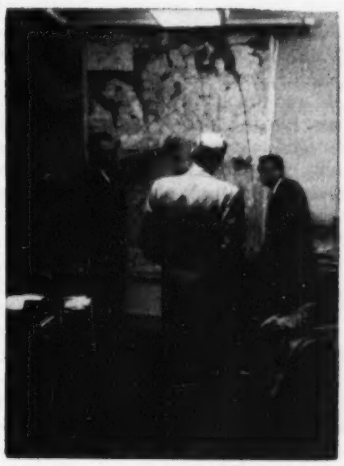
Today, under the direction of Lawson A. Odde and with the industrial division managed by young, aggressive Gerald Kessler, the group is still carrying out its educational program. Speeches, booklets and an information service to industry—including the dissemination of procurement information from the U. S. Department of Commerce—keep them busy.

But in spite of all this activity, they never waged an aggressive campaign to find industry and urge it to relocate on the island.

Industry moved on its own initia-

Long Island Association . . .

EDUCATIONAL PROGRAM includes speeches to service groups such as the Lions Club of Hempstead. Speaker is Myers Baker, real-estate member of Industrial Council.



PROSPECT is given background by Lawson Odde (left) and Gerald Kessler (right). Potential sites are pointed out with relation to needs for transportation, labor, size, etc., and then . . .

SITE is visited for on-the-spot inspection. Prospect's requirements for building area, parking and storage are tentatively laid out and the most promising plots are considered in detail.

IMPORTANT

before you write

the specifications on DRAINAGE PRODUCTS

Call Josam

ROOF DRAINS

for all types of roof construction and conditions

FLOOR DRAINS

for every type of floor drainage condition

INTERCEPTORS

for grease, oil, gasoline, hair, sediment, etc.

BACKWATER VALVES

to prevent water from sewers backing up into basements

SHOCK ABSORBERS

to eliminate water hammer in pipe lines

SWIMMING POOL FITTINGS

inlets, outlets, gutters, overflows, etc.

● Selecting and specifying the plumbing drainage products for any project can be a difficult time-consuming job. Why do this, when you can have authoritative help at your fingertips? Josam has the widest range of plumbing drainage products in the world and can supply you with a complete list of these products for every type of project—illustrated and described in new Catalog "K". Leading engineers use it constantly—or call on the nearest Josam Representative whenever plumbing drainage products are needed. Get your copy of Josam Catalog "K" by sending coupon below today!

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Please send free copy of Josam Catalog "K"

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Briefs from the YEOMANS GUARD

NEW "Must" Literature: Shone Engineering Manual 4000-C1

If you expect, now or later, to lay out a sewage ejector station, you *need* this new Shone® Engineering Manual.

Its 32 pages contain complete engineering data, installation drawings and all essential information on all types of Shone Ejectors for stored air and tankless systems.

This is the first time that complete information of this nature has ever been made available.

To the trusty Shone's numerous cheering section, and for the many who ought to join it, this Manual is "MUST" literature.

☐ Please send Shone Engineering Manual.
☐ Include the Shone Ejector Installation List.

® Registered trade name.

Three More Commandments for Pump Maintenance

A centrifugal pump's function is to pump liquid—not air; and air leakage will cause a pump to lose suction. To prevent that leakage, a centrifugal pump has a stuffing box—a casing, rings of packing, seal caps, and a gland at the outside end.

Observing these three simple rules will pay off in pump efficiency:

1. *Replace packing periodically—using recommended packing.* Forcing in a ring or two of new packing is *bad practice*—likely to displace the seal cage.

Put in each packing ring separately, and seat it firmly before adding the next. Stagger adjacent rings, so that ends do not coincide.

2. *Never tighten a gland more than necessary*—excessive pressure will wear shaft sleeves.

3. *Replace badly scored shaft sleeves immediately*—or packing will not last long.

These and other common-sense rules make Manual 2000 a "must" for your maintenance staff.

☐ Please send Manual 2000.

The Simplest Pump Ever Invented . . .

It's the new Pneu-Pump; a pneumatic pump that's simple to manufacture, automatic in operation, practically foolproof, has only one moving part.

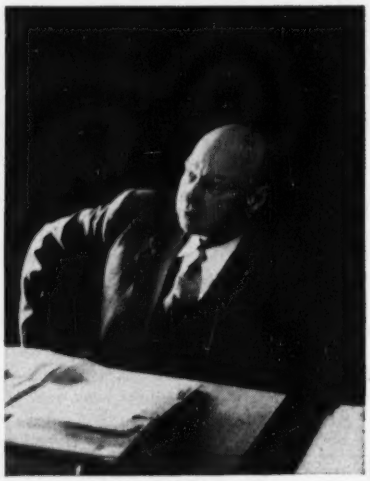
The Pneu-Pump is immune to high temperatures, operates for years without attention; and is priced agreeably low.

You'll find it a quick, permanent answer to pumping extremely small volumes of water, oil, mud, paint, tar, acids, alkalis, sludge, molten metals, molten salts, slurries, abrasive liquids and any other "problem child" that pesters you.

☐ Please send Pneu-Pump bulletin.

The Yeomans Guard, published several times a year, is a compendium of news and useful information covering the pumping of materials and the treatment of wastes, both domestic and industrial. We shall be pleased to send you the current issue if you'd care to have it. Ask your local Yeomans Representative—listed in the telephone book yellow pages under "Pumps"—or write direct.

YEOMANS BROTHERS COMPANY
1999-1 N. RUBY STREET, MELROSE PARK, ILLINOIS
Manufacturers of: Centrifugal Pumps and Pneumatic Ejectors for Buildings, Municipalities, and Industrial Applications, and a Full Line of Waste Treatment Equipment.



A. HOLLY PATTERSON, Nassau County executive, typifies upper echelon officials who generally favored industry. Most resistance came from the strictly local governments.

tive, aided by the associations' information service.

But the big push wasn't there.

What was needed was somebody—or something—to get industrial relocation moving in high gear.

• **Enter the contractor**—The impetus was supplied by Harry Matthews, then president of Brown & Matthews, Inc., a New York firm specializing in industrial building.

The firm has been doing this kind of building since the company's inception in 1933 as a partnership between structural engineer Matthews and construction superintendent Robert Brown. Incorporation came a year later in 1934.

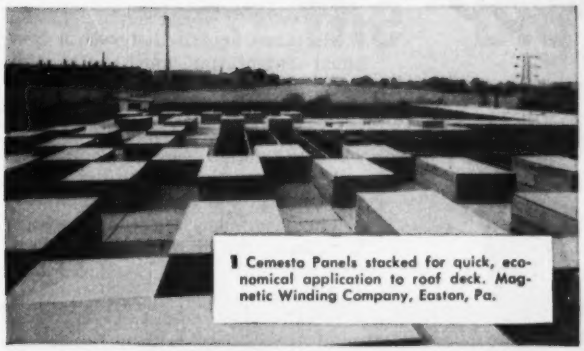
It was touch and go in the first few years for the fledgling company. It managed one new employee in 1933, a young engineer just graduated from Stevens Institute of Technology in Hoboken, N. J., who was looking for his first job. His name: Frederick A. Bickel and his present title: President.

From the start, they concentrated solely on industrial building, but after a few years Matthews saw glimmerings of greener fields within this specialty.

Why not, he argued provide a complete service for a client? Get him interested in moving to a better location, help him modernize his operations, assist with the necessary surveys to find the best spot for labor, transportation and utilities, locate financing, and finally build a new plant for him.

All this would be done on a "one-responsibility" contract. The owner

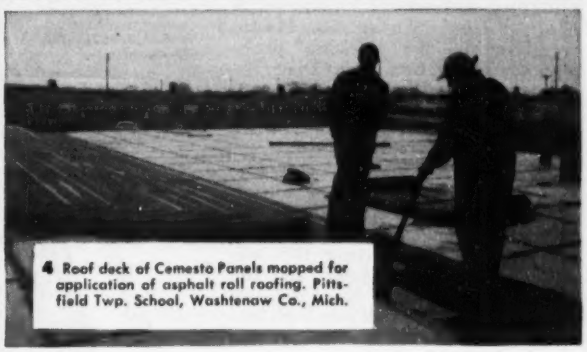
Cemesto® builds *insulated* roof decks *fast* and *at low cost!*



1 Cemesto Panels stacked for quick, economical application to roof deck. Magnetic Winding Company, Easton, Pa.

2 Caulking joints between Cemesto Panels. Smooth surface makes ideal roofing base. Carolina Asbestos Co., Marshville, N. C.

3 Cemesto Panel deck weather-stripped. All panel edges weather-sealed at factory. Magnetic Winding Co., Easton, Pa.



4 Roof deck of Cemesto Panels mopped for application of asphalt roll roofing. Pittsfield Twp. School, Washtenaw Co., Mich.

Cemesto, World's Most Versatile Building Material, combines amazing structural strength, high insulation value, interior and exterior finish—all in a single fire-resistant panel that's quick and easy to apply!

* * *

No other building material gives you all the advantages of Cemesto Insulating Structural Panels for fast, low cost construction of roof decks, as well as curtain walls and partitions. For no other combines all the remarkable properties of this modern building material.

Strong, rigid, pre-formed Cemesto Panels are made of Celotex cane fibre insulation to which cement-asbestos facing is bonded on both sides by a highly vapor-resistant adhesive. They are lighter than most building materials, yet have the structural strength to carry the roof load with a high margin of safety. And their cane fibre core is protected against dry rot and termite attack by the exclusive patented Ferox® Process.

Cemesto Panels Insulate As They Build

When you build with Cemesto Panels, you do more than speed up work and cut costs. You also *insulate efficiently* for only slightly more than the cost of *un*insulated construction! The result: buildings that are cooler and more economical to air-condition in summer, warmer and thriftier to heat in winter . . . more comfortable, healthier working conditions for occupants . . . increased production and reduced accidents through improved employee efficiency . . . greater client satisfaction!

Cemesto Panels resist fire, weather and wear—*they're a "life of the building" material!* Their smooth, hard, noncombustible, stone-grey surfaces have a light reflection value of 58%, and provide both interior and exterior finish. Left unfinished, they never need maintenance. Can be worked with ordinary tools on the job, or pre-cut at the mill for faster application. Quickly, easily attached to steel framing with metal clips or to wood framing or wood members with nails.

Cemesto Panels Are Amazingly Versatile

Cemesto Panels make possible many important economies in the design, construction and maintenance of every type building . . . from modest home to giant industrial plant. Almost 22 years of varied use in all climates, all over the world, prove their stability and permanence. Mail coupon below for new brochure giving comparative spans, weights, "U" values and costs for the types of roof decks in common use today.

THE CELOTEX CORPORATION,
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Without obligation, send me your new brochure giving complete, up-to-date data on the physical characteristics and comparative erected costs of the eleven types of roof decks in common use.

Name.....

Address.....

City..... Zone..... State.....

Smoothing the Patter of Great BIG Feet

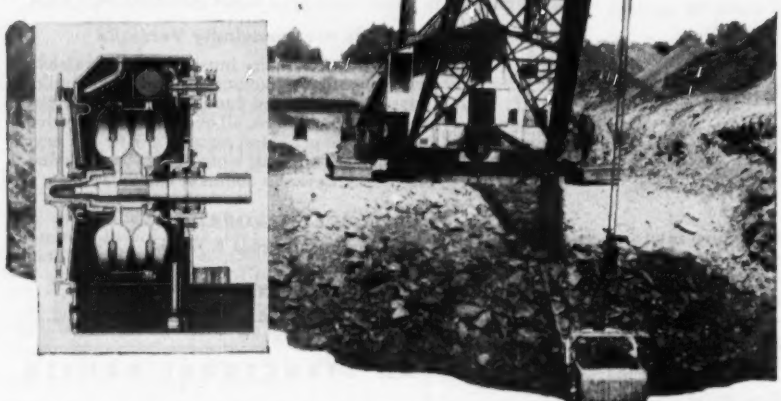
Dragline builders find one of their knottiest engineering problems in easing surges and shocks, while "walking" the ponderous machines.

In the 700-ton, 12-yard Monighan Dragline—owned by Pittsburgh & Midway Coal Mining Co., Hallowell, Kansas—the "walking" problem was solved by a Twin Disc Disconnecting Hydraulic Power Take-Off installed between the Caterpillar D 397 engine and the speed reducer, to actuate the two gigantic "feet."

"With the Disconnecting PTO," says Mr. Ed Phelps, General Superintendent of Pittsburgh & Midway, "the cyclic surges have largely disappeared. We're moving the machine considerably faster, and the shock absorption of the coupling gives us a higher work rate with less maintenance than with straight mechanical drive."

For complete data on Model HUD and other Twin Disc Hydraulic Drives, see your nearest Twin Disc Hydraulic Dealer—or write Twin Disc Clutch Company, Hydraulic Division, Rockford, Illinois.

Twin Disc HUD Disconnecting Hydraulic Power Take-Off acts as both shock absorber and cut-off clutch—speeds movement and ups yardage by 10% on this walking dragline. HUD's (see cross section lower left) are available in sizes 21 and 27" for 60 to 600 hp engines.



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Backed for a Lifetime

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CLUTCHES AND HYDRAULIC DRIVES

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had to look to only one place for the complete deal.

This is not unique today, but in the thirties, only a few firms offered such a service.

Matthews figured that with a combined engineering and construction force, he could proceed more efficiently. As an example, he would be able to order materials in short supply while the design was still in progress and then have the stuff on hand when construction was about to begin.

The firm developed along these lines under the direction of Matthews until his death in 1951. Bickel then took over as president, instituted one innovation—the company will now build and finance a plant for a company, with the manufacturer occupying it under a lease arrangement. He continued the forward-looking leadership exemplified by Matthews.

• **Set for business**—With this background, B&M was a natural for the island. There were sites (if they could be rezoned), plenty of labor and utilities and construction was comparatively simple with a sandy soil and generally flat land in the most likely industrial areas.

So they went to work. First they helped the Long Island Association in the effort to gain the acceptance of industry. Then they went out and literally rang doorbells, selling their package plan to those firms they suspected were crowded and could be shown that a move to Long Island would be of advantage.

Not all their business came this way—and certainly not all of it is concentrated out on the island—but they have averaged close to $3 million a year for the last six years on their Long Island work.

Matthews was smart enough to realize that one misstep would have hurt his future prospects so he was careful to build only for those firms whose operations wouldn't cause a nuisance.

• **Results**—Now the island is dotted with manufacturing plants, ranging in size from about 5,000 to 500,000 sq ft. Local merchants have increased business over that to be expected from the increased population if industry hadn't moved in.

The attitude of the towns today reflects the success of the program. In place of the former hostile attitude, the municipalities are now clamoring for industry.

All the construction hasn't been in isolated buildings, however. Webb &

(*Continued on page 73*)

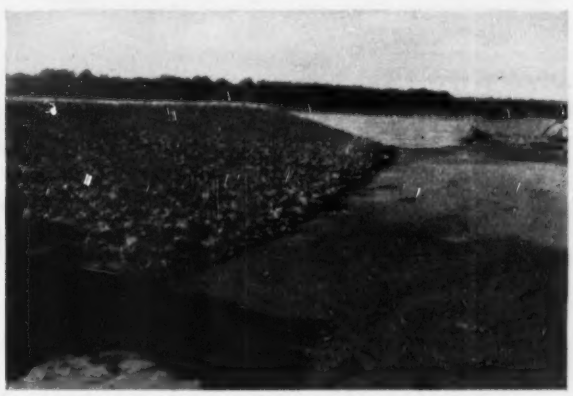
Du Pont Dynamites Helped Harness the "Big Muddy"

... speeded production of quarter million tons of rock

Dredge "St. Genevieve," operated by U. S. Corps of Engineers, excavating 250-foot pilot channel at scene of Missouri River flood-control project near St. Joseph, Mo. Construction required 10,800 lineal feet of standard revetment to delineate west bank and training structures to force river into channel. Almost a quarter million tons of rock were used.

Typical view of 50-foot ledge at Tobin Quarries, Kansas City, Mo., where Du Pont Gelex® dynamite and Du Pont "MS" (millisecond) Delay Electric Blasting Caps were used to speed production of the uniformly broken limestone rock required by Condon-Cunningham Co., Omaha, Nebr., for the west-bank revetment contract.

Steady flow of well-placed rock broken to size was also quickly obtained with Du Pont 40% Red Cross Extra® dynamite by J. E. Vandiver Construction Co., North Kansas City, Mo., for the Massman Construction Co., Kansas City, Mo., whose operation embraced construction of training structures to divert the river about cutoffs on both banks.



View shows cutoff point constructed by Massman at western edge of river with new channel at the right. Note placement of properly broken quarry-run stone delivered at rate of 5000 tons per day. Du Pont Dynamites and "MS" Delays proved an ideal combination on the job. "MS" Caps helped control fragmentation and decreased back break.

Ask the Du Pont Explosives representative in your area for complete information about Du Pont Explosives, blasting supplies and accessories. He will welcome opportunity to be of help to you. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

DU PONT EXPLOSIVES

Blasting Supplies and Accessories

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BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

"...reinforced concrete was selected on the basis of economy"

General Accounting Office Building, Washington, D. C., designed and constructed under the Public Buildings Service, General Services Administration. Contractor: John McShain.

CUT YOUR STRUCTURAL COSTS with REINFORCED CONCRETE

● Because economy was such a big factor in planning this imposing new structure, every possible means of cutting costs was given careful study. As a result—*it was built of reinforced concrete!*

Engineers and builders all over the country have found that reinforced concrete *costs less!* It saves erection time, too. It is strong, durable, inherently firesafe, and highly resistant to wind, shocks, and quakes. Moreover, materials are readily available from local sources. Consider all these advantages . . . and design your next building for reinforced concrete.

CONCRETE REINFORCING STEEL INSTITUTE
38 South Dearborn Street, Chicago 3, Illinois

Knapp, New York real estate firm, is developing the former Roosevelt Field (see picture page, p. 46) as an industrial site. B&M laid out the plan for this 380-acre site and built the first building, a 400,000-sq ft structure for the Arma Corporation. Two other buildings—each of 100,000 sq ft—have been completed recently.

In addition to the strictly industrial building, the movement of industry to the area has quickened other types of construction.

The L. I. Agricultural and Technical Institute in Farmingdale put up a $2-million building to expand its facilities for training the technical workers now in great demand.

The local banks are sponsoring a new $1-million banking-studies building for Hofstra College, which is located in Hempstead, because they require trained personnel in the enlarged banking business.

Sub-contractors to the big producers are erecting smaller structures as are the satellite engineering and research firms.

Utilities, roads and other service construction complete the picture of a lot of building resulting from a little initiative and a lot of "education."

Dallas rains solve water shortage problem

April showers brought more than May flowers to Dallas, Tex. As a result of the rains, the city council halted plans to tap the West Fork of the Trinity River for emergency water supplies.

[The plan had been approved on the recommendation of Lockwood & Andrews, Houston engineers, in the dry days of February (ENR, March 5, p. 46).]

The council ruled, however, that a dam now being built across the West Fork be finished as a stand-by measure. Water will be by-passed through open gates and a diversionary channel until needed.

Background on Dallas' water troubles can be found in ENR issues for Jan. 8, 1953, p. 53 and Nov. 6, 1952, p. 51.

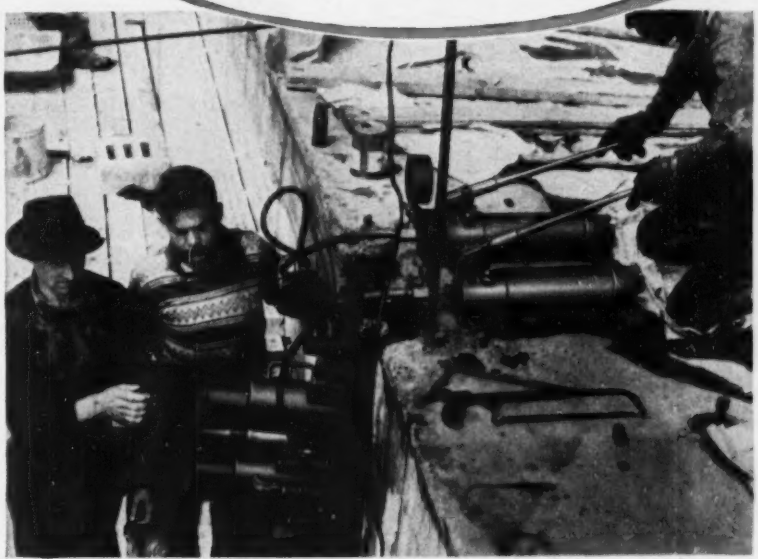
Phoenix debates measures for air-cooling services

Do city measures protecting municipal installations serve their purpose or retard community growth?

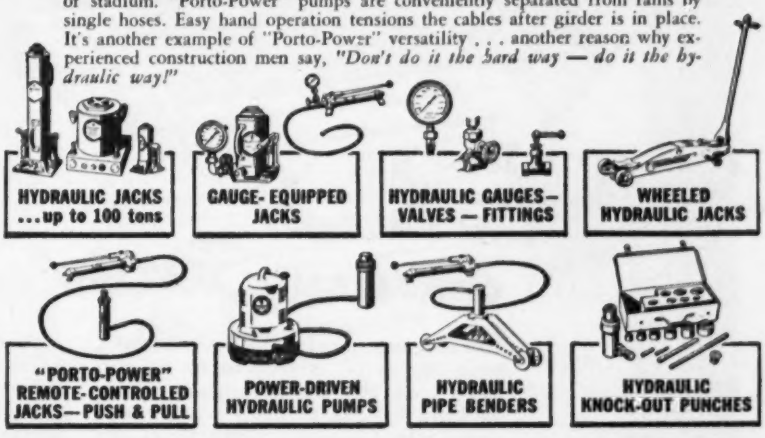
The matter is up for serious debate at Phoenix, Ariz., where the city wants to require recirculation devices on all new refrigerated air conditioning systems in areas that are hooked

Pick the right jack for the job

...from the world's most complete line of hydraulic jacks



Two 50-ton "Porto-Power" Jacks pre-stress concrete girders during construction of stadium. "Porto-Power" pumps are conveniently separated from rams by single hoses. Easy hand operation tensions the cables after girder is in place. It's another example of "Porto-Power" versatility . . . another reason why experienced construction men say, *"Don't do it the hard way — do it the hydraulic way!"*



YOU GET ALL THESE HYDRAULIC TOOLS ONLY FROM BLACKHAWK

BLACKHAWK

Save buying time when you need hydraulic equipment. Specify Blackhawk—and be sure you'll get the hydraulic tool that will match your requirements exactly. Order from leading supply houses. Write for free catalogs. Products of Blackhawk Mfg. Co., Dept. J3653, Milwaukee 1, Wisconsin.

Why does THIS GATE always draw "TOP BOX OFFICE?"

CHAPMAN *Standard* SLUICE GATES

Any investment that's been proved safe, over the years, is sure to be a "top draw" on the list of anyone who's looking for his money's worth. And that's why Chapman Sluice Gates are the top choice of shrewdly managed waterworks, sewage works and flood control projects all over the country.

There are 3 good reasons for this: *First,* Chapman's Standard Line includes many types and sizes that are usually expensive special-order jobs. *Then,* installation is quick and easy (with *any* type of operating control) because stems and couplings don't have to be match-marked. *Finally,* any servicing needed can be done on the job, without alterations. See what Chapman Standard Sluice Gates can save for your project. Write for catalog No. 25.

The Chapman Valve Mfg. Co., Indian Orchard, Mass.

up to the city water or sewer system.

The city has maintained that waste water from refrigeration units already is causing a serious strain both on the city's sanitary sewer system and on its limited storm sewer system.

• **Against**—But Paul Johnson, president of Johnson Brothers Mfg. Co., representing a major refrigeration manufacturer, attacked the proposal as "retarding the growth of Phoenix."

Johnson objected that the cost of residential refrigeration units would be increased about 25% if cooling towers or similar devices are required. He urged that the city construct a sewer system capable of taking care of projected needs. "Over a period of years, the summer economy of Phoenix has been changed by home cooling," he said, "and it would be money well spent to provide services."

• **For**—Dario Travaini, superintendent of water and sewers for the city, disagreed and indicated the burden of relieving the strain on city facilities rested with the individual making the installation.

Travaini said that by 1962 there will be an estimated water consumption for air conditioning in Phoenix of 40 mgd during the summer.

"That will mean an investment of $4 million to produce the water," he said, and added that storm sewers will take another $12 to $15 million to provide service only 4 mo of the year.

"Many homes in the power district can't even afford evaporative coolers, yet would be taxed to pay for sewer lines to carry off refrigeration water," he concluded.

Municipal briefs . . .

• **Mall contract**—The first contract for Independence Mall in Philadelphia, Pa., has been let to Edwin Hollenbeck, Philadelphia, for more than $690,000. (See ENR, June 30, 1949, p. 22 for plans.)

• **Railroad elevation**—DeLeuw, Cather & Co., Chicago engineers, will draw the plans for the $8.2-million Nickel Plate Railroad track elevation project in Fort Wayne, Ind.

• **Cincinnati fluoridation**—A petition has been filed with the Cincinnati, Ohio, city council opposing the start of fluoridation of the city's water supply. If a sufficient number of signatures are found valid, the water treatment question will have to go before the public in a referendum vote next November.

STRAND & SONS *General Contractors*
3030 UNIVERSITY WAY
SEATTLE 5, WASHINGTON
PHONE MELROSE 0920

Masonite Corporation
111 Sutter Street
San Francisco 4, California

Gentlemen:

It gives us great pleasure to advise you of the economical and successful advantages we have enjoyed from using Masonite Concrete Form Presdwood on the Men's Residence Hall at the University of Washington in Seattle.

We have used it eight times to date and feel confident it will stand up for the entire 12-time use required for this 12 story building.

In addition, it has proved very economical, because the extreme smoothness of the concrete surface has reduced our labor for sacking and grinding. In fact, your Concrete Form Presdwood gives us the smoothest surface we have ever been able to produce.

Yours very truly,
STRAND & SONS
By Ray W. Strand

CONCRETE EVIDENCE
that
MASONITE CONCRETE FORM PRESDWOOD
can be used again and again!

You can profit by the experience of others. You can save time and cut costs with this tough, grainless, all-wood hardboard. Comes in handy 4′ x 8′ and 4′ x 12′ panels...easy to cut and fit.

Here's a tip: For unpainted surfaces, pour against the screen side of Concrete Form Presdwood®. You'll cut hand-rubbing time 50% or better!

- Won't split, splinter or crack.
- Can be curved for arches, columns, etc.
- Easily worked with carpentry tools.
- Insures complete, uniform hydration.

Send for the complete facts about Masonite Concrete Form Presdwood

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Please send me your brochure on Masonite Concrete Form Presdwood.

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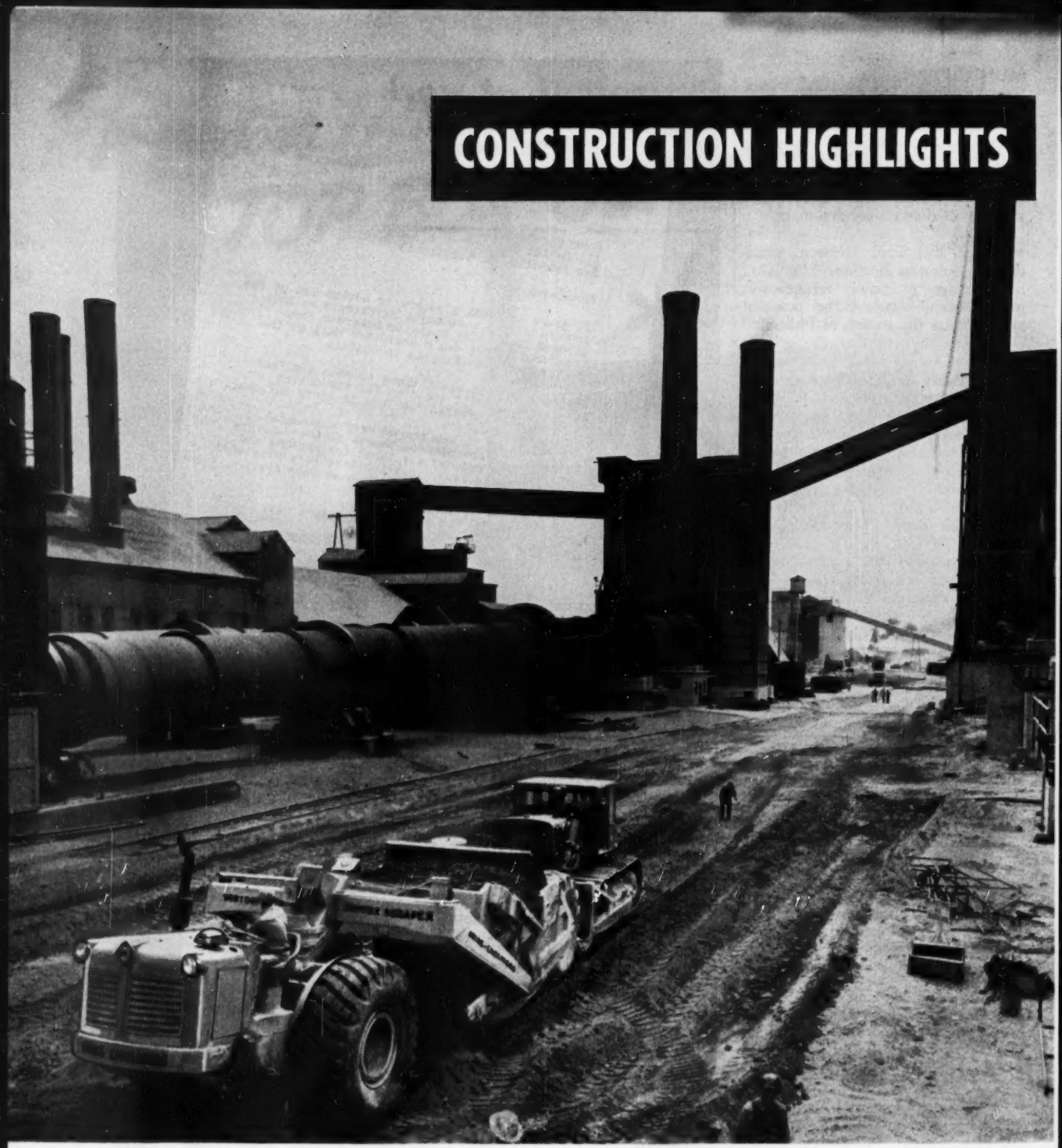
Better Hardboards for Better Concrete



BUILDING RAILROAD BED — Here's a correctly matched earth-moving pair at work preparing the bed for a railroad spur in the yards of a large chemical plant. Up front is an Allis-Chalmers TS-300 Motor Scraper, moving up to 18 cubic yards of dirt every pass. Push-loading the TS-300 to a full, fast payload is an Allis-Chalmers HD-20 Tractor, with hydraulic torque converter drive.

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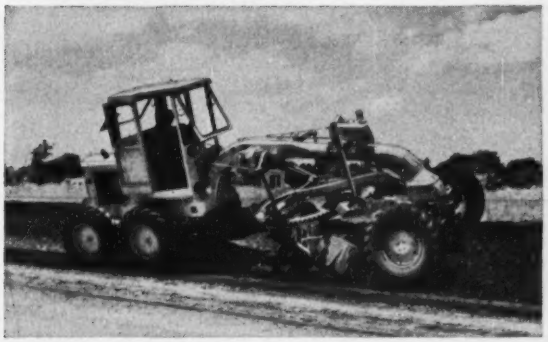
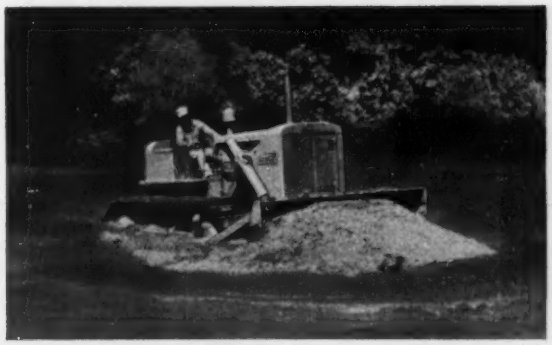
Advertisement

Allis-Chalmers equipment at work . . .



WORKING OIL MIX king size. That's what this big AD-40 Motor Grader is doing on a black-topping job. Built-in power steering simplifies operator's work by eliminating tiring "wheel fight."



FEEDING RIVER SAND to dragline is a tough job, but this HD-9 takes it in stride. Its Positive Seal truck wheels, idlers, support rollers keep grease in, trouble out . . . require lubrication only every 1,000-hours.

BACKFILLING on a water main and sewer construction job is just one of dozens of ways cost-conscious contractors use the versatile HD-5 Crawler.

LOADING BIG BOULDERS from rock pile to truck is a simple matter for this Allis-Chalmers HD-20G with four cubic yard, front-mounted tractor shovel.

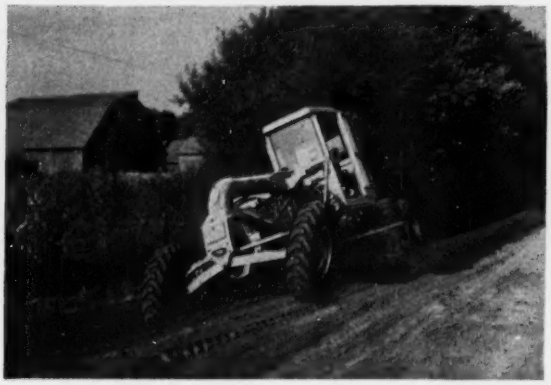
CLOSE-QUARTER WORK is made for the Allis-Chalmers Model D. This versatile motor grader handles dozens of jobs, from road building to landscaping, easily and at low cost. And its usefulness is multiplied by several easily mounted attachments, including hydraulically controlled scarifier and rear-end loader.

Continued on next page

Advertisement

Allis-Chalmers helping both small and big contractors . . .

WIDENING ROAD. Owner found his HD-15 gives him up to 25 percent more output on short cycle dozing, because operator can go from any forward to any reverse speed in just one lever shift.



BETTER DITCHES result because an AD-40 operator can see graders front wheels and both ends of blade . . . because he has the advantages of Allis-Chalmers exclusive ROLL-AWAY moldboard.

FULLY LOADED and ready to make a sharp, downhill turn, this Allis-Chalmers 18-ton-capacity TR-200 Rock Wagon — with air brakes and low center of gravity — is under full control all the way.

ONE-MAN CONSTRUCTION CREW. This HD-9G with two cubic yard shovel, shown rough grading here, also lifts, dozes, digs, handles most bulk materials faster, better, more economically than before.

FLEET OWNERS GO ALLIS-CHALMERS, TOO. Contractors find the design advantages of Persian orange equipment bring more profit to their operations; and that rugged construction keeps it on the job longer. Now, to fit their jobs, they can select from seven scraper sizes . . . for use with any tractor.

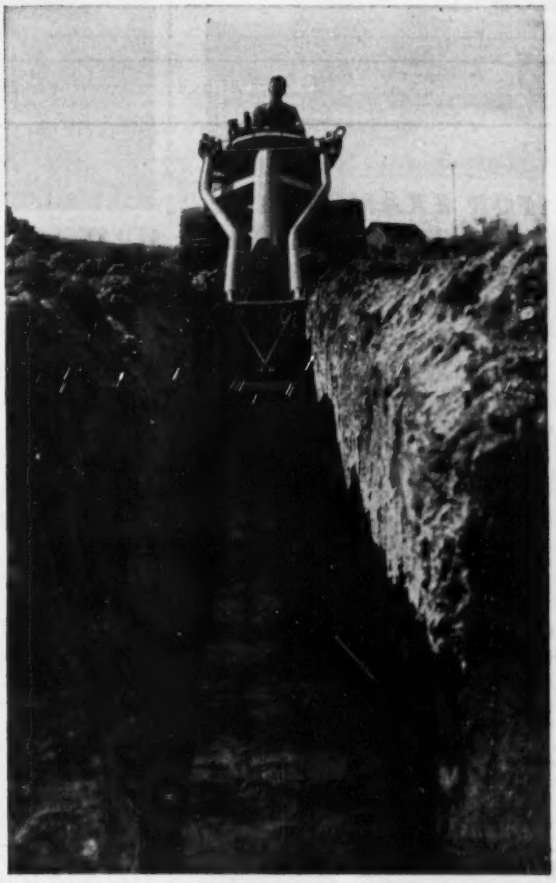
Advertisement

handle today's jobs at lower cost . . .

HIGH-SPEED DIRT-MOVING TEAM loads and hauls big yardage on this large-scale operation. An Allis-Chalmers torque converter drive tractor helps load a trio of TS-200 Motor Scrapers and gives them a fast, smooth start from the cut. Quick to get moving, these hydraulically controlled Motor Scrapers speed to the fill with capacity loads up to 13 cu. yd., and with positive forced ejection, dump fast and clean.

FINISHING BETWEEN FORMS takes precision work. That's what this contractor is getting from his Model D . . . the low-cost motor grader, proved on dozens of jobs by thousands of users.

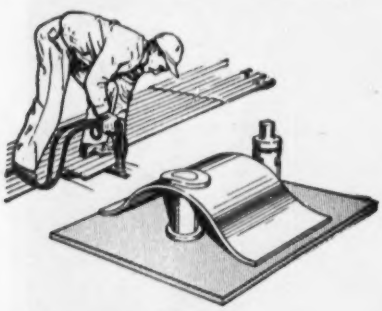
TOUGH DOZING JOBS are made to order for the torque converter HD-20. Matching power to the load exactly, this huge tractor automatically moves load at highest speed that conditions permit.



DIGGING TRENCHES. This hydraulically controlled, front-end trench hoe is only one of a dozen attachments making Allis-Chalmers HD-5G the most useful tractor in the world.

FASTEN IT BETTER... AT LESS COST... WITH NELWELD

FOR EXAMPLE...
CORRUGATED METAL ROOFING AND SIDING



ONE SIDE APPLICATION
FINE APPEARANCE GREATER STRENGTH
LOWER INSTALLATION COST

Nelson construction fasteners are distributed by United States Steel Supply Co., Reynolds Metals Co., Aluminum Company of America, Johns-Manville, Philip Carey Mfg. Co., Armstrong Cork Co., Southern States Iron Roofing Co.

NELWELD
NELSON STUD WELDING
DIVISION OF GREGORY INDUSTRIES, INC., LORAIN OHIO

MEN AND JOBS

Photo by Phil Palmer

"I'D CHOOSE the same career again", says retiring Rear Adm. Lewis Moeller, senior engineering officer who retired May 1 after 35 years.

Senior CEC admiral retires to civvies; takes job with Palmer & Baker, of Mobile

"If I had it to do over again, I'd choose the same career."

That was how Rear Adm. Lewis N. Moeller, CEC USN, summed up his 35 years of engineering for the U. S. Navy. Before his retirement early this month, Moeller was the senior Civil Engineer Corps officer on active duty. He left his job of supervising Navy construction in the Pacific Ocean and Alaskan areas to start a new career with Palmer & Baker, Inc., consulting engineers of Mobile, Ala.

Here Moeller will work with an old friend, Rear Adm. William H. Smith CEC USN (Ret), who is chief engineer and executive vice-president. He'll be field supervisor of all construction projects.

At present, Palmer & Baker holds contracts for design and supervision of construction of several major highway projects in Louisiana (including a 24-mi bridge-causeway across Lake Pontchartrain); underwater vehicular tunnels at New Orleans and Ft. Lauderdale, Fla.; a bascule lift bridge at Miami; and the Forrest Sherman Field Development at the Pensacola Naval Air Station. Other projects include a new type of refrigeration barge for the Army and floating drydocks for the Navy.

• **Varied experience**—A graduate of Columbia University's School of Engineering, Moeller was commissioned a lieutenant, j.g., in 1918 on the basis of a competitive examination. Navy men say that, even for a Navy engineer, his experience has been remarkably varied. He has built waterfront structures, drydock repair facilities, airfields, hangars, runways, roads, hospitals, refrigeration plants, and radio control stations. He's also a specialist in executive management.

From 1935 to 1937, Moeller was

"A Triple play BY RB&W REALLY SAVED US PLENTY!"

"It took us by surprise," Al went on, "when an RB&W man told us* he could speed up assembly of this precision screw-and-clamp unit and save us money besides. We figured we'd been doing O.K. the old way."

"What was the old way?" asked Mac, who'd recently started in at the shop.

"Well, it was a one-two-three operation. We used to machine the slotted-head screw for the clamp on that machine over there. Then we'd make a special collar, and fit it around the screw head to prevent the screw-driver from slipping out of the slot while the clamp was being applied or adjusted.

"What RB&W did was to cold-form the whole thing—screw, slot and collar—all in one piece. Wasn't an easy job, either—they had to strike a slot in the screw head and form the collar at the same time. Now we're saving one-third on our previous assembly costs—along with the price of the special collar."

Which proves that you can generally cut costs, if you look hard enough . . . even in such simple things as fasteners. It also underlines the creative approach to fastening problems you can expect from RB&W, as well as practical experience in designing and fabricating. If the fastener you need can't be supplied from our extensive stock, we'll study your assembly operation and make the right one for the job.

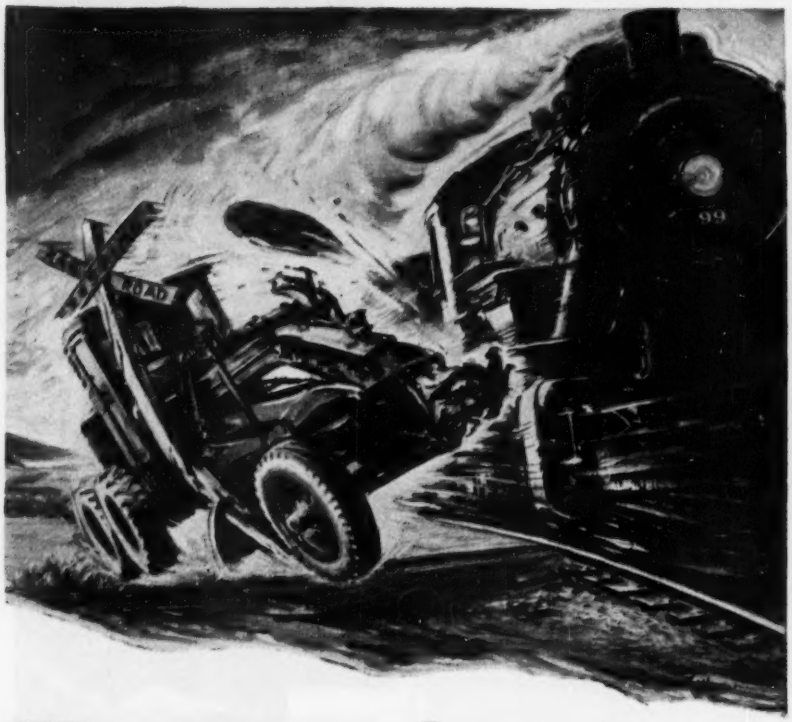
Remember—for any fastening operation, it's a smart move to call in RB&W. You can count on RB&W bolts, nuts, screws and rivets for uniform accuracy, dependability and physical properties. And you can also count on fast service from RB&W's strategically located plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Pittsburgh, Detroit, Chicago, Dallas, San Francisco. Sales agents at: Portland, Seattle. Distributors from coast to coast.

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

2.12

*George K. Garrett Co., Philadelphia, Pa.

RB&W 108 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG



When our grader took on "old 99"...

(A true story based on Company File #60708)

Maybe the operator was extra anxious to get home. Maybe the August heat was just too much for him.

Anyway he steered our big diesel grader onto the railroad tracks never looking to see whether a train was near!

One was. He couldn't, of course, get the grader out of the way in time and "old 99" knocked it off the tracks. Damage—$1445.

But, because we had a Contractors' Equipment Policy, the repairs didn't cost us a dime!

The repair bill was paid by the Hartford Fire Insurance Company under its Contractors' Equipment Policy.

This policy reimburses you for loss or damage to equipment caused by fire, theft, explosion, collapse of bridges, collision, overturn, landslide, windstorm and other specified hazards.

It doesn't matter whether the equipment is on the job, in transit, or in storage.

And any additional contractors' equipment you buy is *automatically covered for 45 days* even if you haven't reported it.

When the next accident happens don't be the one who has to lay out cash for repairs or replacements. You needn't if you act now. Begin by calling your Hartford Fire Insurance Company Agent or your insurance broker.

Year in and year out you'll do well with the

Hartford

Hartford Fire Insurance Company • Hartford Accident and Indemnity Company
Hartford Live Stock Insurance Company • *Hartford 15, Connecticut*

IN THE '30s, it looked like junior officers would be lucky to make commander.

contract and design superintendent at Pearl Harbor. In World War II, he was in charge of progress control and statistics for the Navy's entire war construction program. He left Washington early in 1945 to supervise construction of an ordnance test station for advanced weapons in California's Mojave Desert.

Right after the war, Admiral Moeller served as senior member of an Army-Navy board appointed to study San Francisco Bay crossings. In a 1948 report, this board recommended, to relieve congestion on the Bay Bridge, immediate construction of a crossing to the south of the existing San Francisco-Oakland Bay Bridge that would connect Army Street in San Francisco with Alameda on the East Bay side.

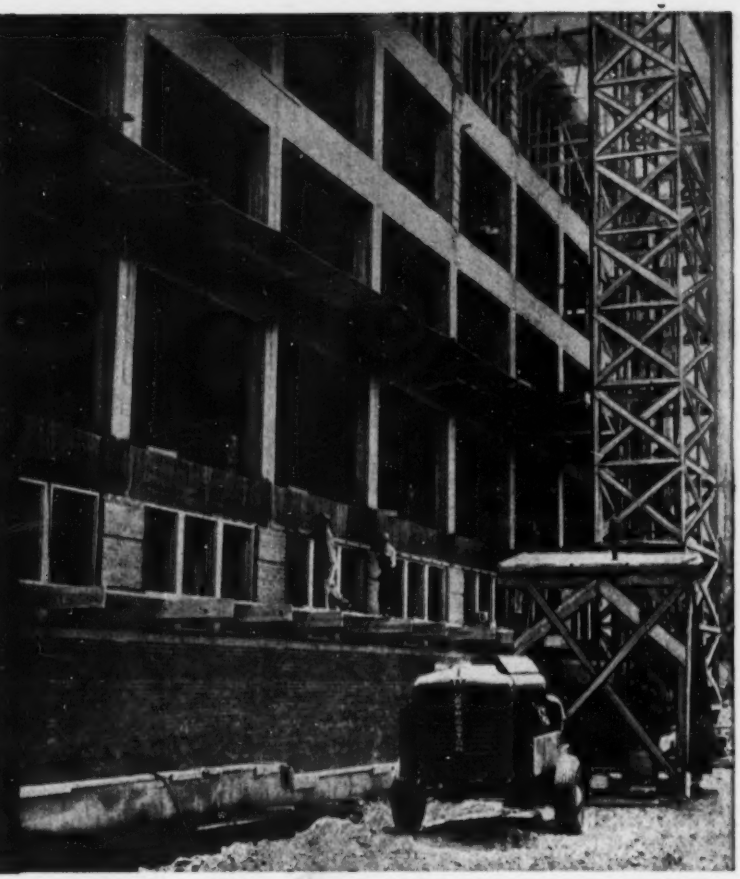
• **Blast effects**—Some 20 years earlier he served on a board considering far different engineering problems. This group studied the lessons of the 1926 explosion at the Lake Denmark Naval Ammunition Depot. This was one of the early studies of blast effects. As result of these deliberations, igloo-type storage huts were developed. The board also established tables of safety distances for ammunition storage which the Navy still uses.

At the Philadelphia shipyard in the late '20s, Moeller supervised rehabilitation of the underpinning of a Simpson-type timber dry dock. This unit originally was built by Rear Adm. Robert Peary, CEC USN, better known for his discovery of the North Pole. The urgency of the job required winter concreting operations that involved an early use of cement with a high alumina content.

While at Philadelphia, he supplemented his Navy income by teaching evening courses in engineering at Drexel Institute of Technology. This

"We can depend on our BLUE BRUTES"...

Writes J. E. Dunn, Jr., of the J. E. Dunn Construction Company, Kansas City, Mo., about Worthington construction equipment.



WORTHINGTON BLUE BRUTE 105-ft. compressor used by the J. E. Dunn Construction Company in construction of a new addition to the University of Kansas Hospital.

HARD-HITTING BLUE BRUTE breaker at work on the hospital job.

Mr. Dunn goes on to say: "We find that we can depend on our Worthington 105-foot and 60-foot compressors, which we have been using now for approximately 6 years. Maintenance costs of these units have been extremely low.

"We have used the Worthington Blue Brute to power hand-held air tools and kindred equipment on all types of construction jobs. Many of our jobs have been extremely tough, but our superintendents have learned to expect uninterrupted service from these machines and to date they have been getting just that. We believe in using the best machinery we can buy, because we know from our past experience that we get more for our money by buying the best."

Find out how Blue Brutes can step up efficiency on your construction jobs. Contact your nearest Worthington district office or distributor for more facts and bulletins. Or write to Worthington Corporation, Construction Equipment Division, Plainfield, N. J.

H.3.2

If It's A Construction Job, It's A BLUE BRUTE Job

WORTHINGTON
Construction Equipment

Waterproofed BRIXMENT HELPS PREVENT LEAKY WALLS

When a masonry wall leaks, water almost never passes *through* the masonry units or *through* the mortar. It works its way through cracks or openings *between* the masonry units and the mortar.

Even when full joints are secured, cracks are not entirely eliminated. The best precaution is therefore to parge or backplaster the face brick with waterproofed mortar, before the back-up brick are laid.

Brixment is permanently waterproofed, during manufacture, with the most effective air-entraining waterproofing agent known. Even under pressure, water cannot readily pass through Brixment mortar. Therefore, if the face brick are backplastered with Brixment mortar, an effective barrier is set up against the further penetration of any water which may have worked its way through cracks or voids in the outside face of the wall.

* * * * * * * * *

In addition, the waterproofing in Brixment gives you two other practical benefits:

1 GREATLY INCREASES DURABILITY

2 HELPS PREVENT EFFLORESCENCE

These additional benefits of waterproofed Brixment are fully described in subsequent advertisements. Watch for them!

Louisville Cement Co., Louisville 2, Ky.

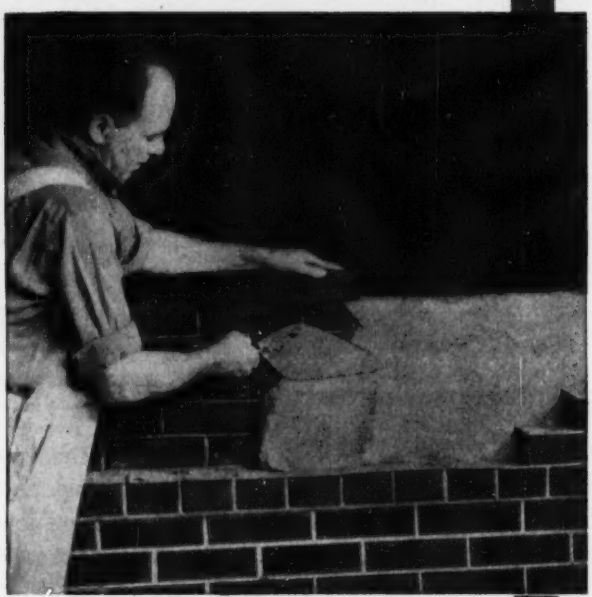


FIGURE 1

This kind of brick work offers the best protection against leaky brick walls. All joints are full, and the face brick are backplastered with waterproofed mortar before the back-up brick are laid.

FIGURE 2

Prepare two slabs of mortar, one with Brixment and one with ordinary cement-and-lime mortar. After mortars have hardened, seal a lamp chimney to each of the mortar slabs, using wax or candle grease, and fill with water.

After 24 hours, note how much water has gone into and through the non-waterproofed mortar, and how little water has gone into or through the Brixment mortar.

BIG WEAKNESS: technical training does not pay enough attention to leadership.

also served to sharpen his technical skills.

In the early 1920's, Moeller was Public Works Officer at the naval station on Guam. On a tour of duty there after World War II, he noted that expanded metal electrical poles installed under his direction 25 years earlier were still in service in spite of World War II bombardment.

• **Satisfying career**—Attesting to Moeller's satisfaction with the Navy as a career is the fact that his son Griswold, a 1942 Naval Academy graduate, is now a CEC officer on duty at the Philadelphia Naval Yard.

He recalls in the early '30s, when there were less than 100 officers in the Civil Engineer Corps, advancement was slow. Bets were made that those junior officers then in the Navy would "be damned lucky to retire as commanders." This was at a time when Moeller was a lieutenant commander—a rank he held for 13 years. But, he says now, something usually develops to provide opportunity for advancement in naval service.

One shortcoming he noted in technical training in his school days as well as today is that not enough attention is given to human relationships. All technical careers, he points out, deal with administration of men as well as materials. Early training should be given toward development of leadership qualities. This is something, concludes Moeller, that our engineering leaders of today have been forced to learn through long, hard experience without benefit of training.

Low pay for its engineers slows N. Y. pollution job

Because of a shortage of mechanical and electrical engineers, New York City won't be able to finish the first

WISCONSIN-Powered Concrete Saw

Each time asphaltic topping was applied to this drawbridge, it slipped out of position due to constant raising and lowering of the bridge . . . until a Wisconsin-powered Clipper Concrete Saw made by Clipper Mfg. Co., Kansas City, Mo., played a vital role.

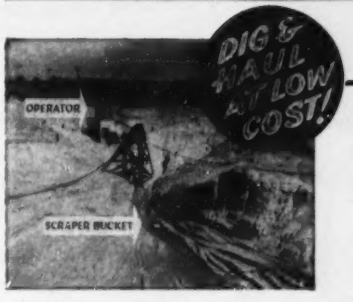
First, old asphalt was scraped off down to the concrete. Then, the Clipper made transverse cuts ¾" deep and 10 feet apart, creating "legs" for the new topping, giving it a chance to *dig in*. Result: the new asphalt *did grip*, eliminating slippage.

Most equipment builders and buyers specify Wisconsin Heavy-Duty Air-Cooled Engines to team up with equipment that must *go to work* and *stay at work*. Such features as foolproof air-cooling, thrust-eliminating tapered roller bearings and an easily-serviced OUTSIDE magneto assure you of peak performance *always*.

Write for details on all 4-cycle single-cylinder, 2-cylinder and V-type 4-cylinder models, 3 to 36 hp.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

A 7447-⅛



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SAUERMAN SCRAPER

One easily trained operator can use the Sauerman Scraper to reach out hundreds of feet and move a full load of sand, gravel, coal or other bulk material to the discharge point rapidly and economically.

The curved plates and bottomless construction of the Crescent Scraper combine maximum strength with minimum weight, thus reducing power consumption. Maintenance is negligible. One-man operation means low labor costs. See for yourself. Write for Catalog A. Sauerman Bros., Inc., 532 S. Clinton St., Chicago 7, Ill.

SAUERMAN

IF YOU CAN USE THE
SHAKES
ADVANTAGEOUSLY

—GET THIS
VIBRO-PLUS
"TOPDOG"* VIBRATOR

It's equipment of a thousand uses—for speeding the flow of materials through hoppers, bins, chutes—for vibrating tables or screens in packing, sorting or testing—for effective noiseless vibration in casting, mixing or loading—in fact, wherever a vibrating impact is useful, VIBRO-PLUS offers these exclusive advantages: Greatest ease of attachment—unsurpassed versatility—extreme lightness of weight—and real "heavy duty kick." Tell us your vibrating problems—we'll send you the proper bulletins.

*Reg. U. S. Pat. Off.

VIBRO-PLUS PRODUCTS INC.
54-11 Queens B'lvd., Woodside, L. I.

CLEVELAND TRENCHERS®

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MORE TRENCH

- 4-Speed Main Transmission
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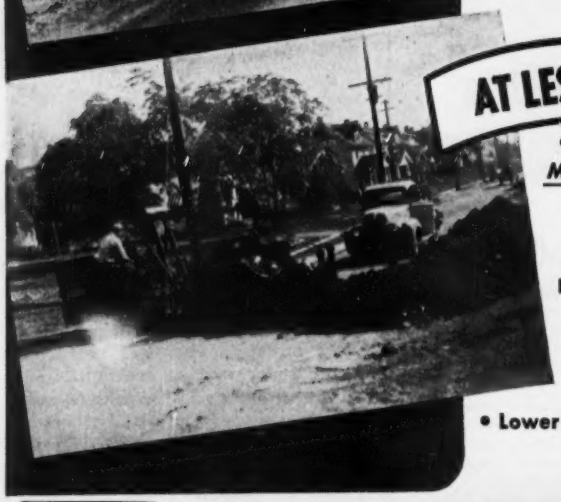

AT LESS COST

- *One* Machine for *Many* Types of Jobs
- Digs All Soils in All Weathers
- Less Property Damage—Crawlers Save Lawns, Walks, etc.
- Unit-Type Construction
- Lower Maintenance Costs
- Longer Life

The
CLEVELAND TRENCHER CO.
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phase of its pollution-control program by the end of this year. Public Works Commissioner Frederick H. Zurmuhlen says that his department has 21 vacancies for mechanical and electrical engineers, because salaries are too low to compete with private industry. The department at the present time has 36 engineers.

According to a 1948 consent decree of the Interstate Sanitation Commission (ENR Mar. 26, p. 68), the city is supposed to finish $100 million worth of sewage disposal plants by the end of 1953 to clean up its main recreation waters. But Commissioner Zurmuhlen expects that within this time limit the city won't be able to finish expansion of its Bowery Bay Treatment Works in Astoria, Queens, and build a $7-million plant on Staten Island.

By the end of 1959, however, Zurmuhlen believes that the city will have caught up with its long-range program of pollution control. In its second phase, the program will use about $200 million to clean up all New York City waters.

Careers . . .

• **Appointed**—**Edmund F. Mansure** has taken office as federal Administrator of General Services . . . **Albert E. Forster** becomes president of Hercules Powder Co., succeeding **Charles A. Higgins** who continues as board chairman . . . **William Brill** is director of engineering for Colorado Fuel & Iron Corp . . . **Walter J. Seeley,** professor of electrical engineering at Duke University College of Engineering, becomes dean July 1 . . . **S. S. Eikins,** safety director for the Southwest Division of the Corps of Engineers, will serve as a temporary consultant to El Salvador on building and operation of the Guayabo hydroelectric plant . . . **Col. George T. Derby** becomes district engineer of the Vicksburg District, while **Col. Raymond L. Hill** takes over this summer as Wilmington, N. C., district engineer for the Corps of Engineers and **Col. Clyde C. Zeigler** becomes district engineer at Charleston, S. C. about Aug. 1. **Col. Arthur C. Numan** will be district engineer at Detroit, and **Col. Stanley G. Reiff** at Dallas, Texas.

• **Local government appointments**—**H. Gordon Gray** is chief engineer of the Massachusetts Public Works Dept. Salary: $9,780 . . . **Clarence E. Bovey** has been named city and cooperative projects engineer of the California Division of Highways.

You can rely on Dewey and Almy construction products

You get *dependable* performance from Dewey and Almy products for the construction industry. You get it where it counts most — in the field, on the job. For each Dewey and Almy product is a result of years of down-to-earth research and field-tested quality controls.

The extensively equipped Dewey and Almy Cement and Concrete Laboratory is not an "ivory tower" . . . it is a *practical* proving ground that mirrors actual field conditions. Even more important, Dewey and Almy engineers are practical men with the *experience* to translate today's test results into specifications for tomorrow's improvements.

Get acquainted with Dewey and Almy products for the cement and concrete industries. See why engineers and contractors all over the world rely on them for their most important projects.

DEWEY and ALMY
Chemical Company
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Plants and sales offices throughout the world

DAREX AEA • World's most widely used brand of air entraining agent. Concrete made with DAREX AEA places easier, finishes faster and better, has finer surface texture, is many times more durable when exposed to freezing and thawing.

AIRALON • A ready-to-use air entraining agent and plasticizer that contains all the ingredients necessary to make a superior masonry cement.

DARASEAL • Creates a "membrane" film — keeps water in newly placed concrete for better, more complete curing.

GRINDING AIDS • Catalyzing grinding aids for cement mills that increase grinding rates of Type 1 cement 15 to 20%; of Type 2 cement 20 to 25%; of Type 3 cement 25 to 50%.

DARACONE • Long-lived silicone water repellent for above grade exterior masonry walls. Effectively combats efflorescence and leaks without affecting the appearance or "breathing" qualities of the masonry.

Benefits of German de-freezer doubted; salt and snowplows still will be needed

For the information of street and highway officials who may have been led to believe that a German inventor had come up with something that would make snowplows and salt unnecessary in keeping their streets and highways free of ice and snow (ENR Oct. 23, 1952, p. 19), the following paragraphs are quoted from a report by S. M. Breuning, research engineer of the Joint Highway Research Project of the Massachusetts Department of Public Works and the Department of Civil and Sanitary Engineering at Massachusetts Institute of Technology.

"In recent months accounts have appeared in the press describing a snow- and ice-free road invented by Wilhelm Rademacher in Germany. It was reported that roads would stay free of snow and ice at temperatures as low as −60 and even −70 deg. F. because an admixture in the surface course of the pavement, acting in conjunction with radioactive emanations from the earth would melt the ice. And—better still—this admixture was said to increase paving costs by only ten to twenty cents per square yard. It was further stated that the State Laboratory for Materials Testing in Hannover had confirmed Mr. Rademacher's claims.

"The Joint Highway Research Project at the Massachusetts Institute of Technology was skeptical but interested. Inquiries addressed to Mr. Rademacher brought no replies but correspondence with other persons in Germany gradually unfolded the story.

"A recent article in a German highway construction magazine gives a fairly good history of the claimed invention. Mr. Rademacher first thought of using high frequency current in connection with chemical preparations added to the top layer of pavement, but this was too costly and offered technical difficulties. He then developed an admixture to asphalt or tar which he called 'Electroswa Clorcatrinat 999 A' or 'E.C. 999A' (also referred to as 'E.C.999AN').

"The State Laboratory for Materials Testing in Hannover wrote that it had only determined the freezing point of this fluid for Mr. Rademacher, without knowing what it was to be used for. It was found to consist mainly of a concentrated salt solution. The laboratory has not tested or otherwise reported on snow- and ice-free pavements. It refuses all responsibility for claims made by Mr. Rademacher or others about the invention and has prohibited his using its name in connection with it.

"According to the magazine article, Mr. Rademacher asked the Department of Road Construction of the province of Schleswig-Holstein in Kiel for permission to use his invention on a road. The first test was on a 7-sq yd area of bituminous pavement about 1¼ in. thick, constructed in the fall of 1951. Results were favorable at +27 deg. F.; below that temperature snow remained on the test area at the same depth as on the surrounding road.

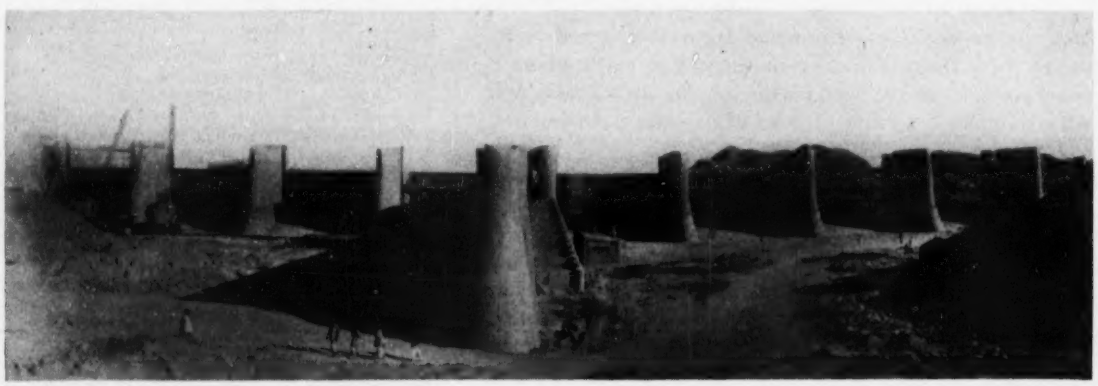
"A second test road was completed in the fall of 1952. It consisted of about 1,800 sq yd of 1¼-in. bituminous pavement with 8% of 'E.C. 999 A' in the binder. This was a complete failure.

"The inventory then suggested a new test with a doubled quantity of his admixture. A third test pavement was completed on the last day of 1952, 60 sq yd in area, 1¼ in. thick, with 14% of the chemical added to the binder.

"Results observed during January, 1953, were similar to those in the first test, but temperatures during the month were only a little below freezing. Complete data cannot be expected before 1954, when observations will be available for an entire winter.

"Recent information from the Schleswig-Holstein Road Construction Department confirms that its tests with Mr. Rademacher's additive have shown no lasting results. For a few

(*Continued on page 90*)



Irrigation barrage— **Pakistani engineers are rushing work on the Indus River's Kotri irrigation weir to provide water for 2,000,000 new acres of land and to supply additional resources to some 750,000 acres in near-starving Pakistan. The $14-million dam will raise the waters of the Indus to flow into a $66-million irrigation system whose thousands of miles of canals will not be fully completed until 1960. The rock-faced concrete structure, 3,000 ft wide, will have forty-four 60-ft bays each with a manually operated 21-ft high steel gate. Piers are 51 ft high, 80 ft long and 15 ft wide at the bottom, and 51 ft long and 7 ft wide at the top. They are carried down to bed rock by caissons through 10 to 20 ft of sand. Three of the piers are double size to carry future power lines as they are later constructed.**

THE DRILL DOCTOR *CRUCIBLE HOLLOW DRILL ROD*

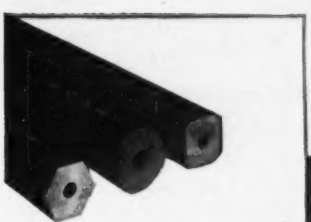
teamwork in specialties

The modern, pneumatic rock drill beats out as many as 2000 violent impacts a minute. The man responsible for keeping these drills operating at top efficiency 'round-the-clock is the busy *drill doctor.*

With the high cost of labor and new equipment he knows that to provide good service his drill must be made of the finest steels obtainable. That's why he counts on Crucible.

For Crucible Hollow Drill Rods have demonstrated time and time again their ability to take it . . . to withstand the severest punishment with minimum breakage and bit loss. And Crucible mills are among the few that produce steels that meet the rigid requirements of the rock drill piston — a part that undergoes the toughest service known for steel.

To get the lowest cost per foot per hole in rock drilling, specify Crucible Hollow Drill Rods.



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A Heavy-Duty Truck Crane that can Lift up to 20 Tons!

Gar Wood's 75BT truck crane gives you a specially designed, heavy-duty chassis for mobility and speed with full 40,000 lb. lifting capacity . . . Folding boom for easier handling in heavy traffic . . . High gantry, optional fluid coupling to absorb shock loads and power load lowering can't be beat for smooth, precision work! . . . Power actuated mechanical drum clutches, exclusive right angle drive, conical hook rollers and many other operating advantages for faster, easier work . . . The 75BT truck crane is quickly convertible to all attachments including the new, exclusive, profit-making Gar Wood Foundation Borer — the machine that bores and bells in one fast operation . . . Get details from your dealer—

TWO CRAWLER MOUNTED CRANES!

Standard-duty 75A and heavy-duty 75B models. With 35 ft. boom on 12 ft. radius a 75A lifts 16,500 lbs. and a 75B, 21,200 lbs. . . . Both are easily convertible *in the field!*

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days after construction ice melted a little faster than on other roads, but thereafter there was no further observable difference."

Dams in Greece

Hydro and irrigation jobs under way all over country

Greek rivers are undergoing improvements that will give agriculture and industry the greatest push they've ever had in that ancient country. One of the biggest projects under study is the $15-million hydroelectric and irrigation job on the Megdova River in central Greece which is being carried out by the New York consulting firm of Knappen, Tippets, Abbett, and McCarthy.

This 160-ft high earth dam job will divert waters from the western side of the Pindus Mountains into the Karditsa plain on the east side. The diversion will utilize a drop of 1,650 ft to produce 84,000 kw and will irrigate some 32,000 acres. Cost of primary energy per kwh is $.0058. Financed by the Greek government, the Megdova project is the largest as well as the most economically built of these projects.

Biggest projected job is the $70-million Kremasta Dam, now being engineered by Ebasco Services of New York, which will have an installed capacity of 180,000 kw. Estimates for cost of primary energy per kwh are $.0174. Ebasco has under way already the $20-million Ladhon Dam with an installed capacity of 50,000 kw at a cost of $.0122 per kwh, the $10-million Agra project which will

GREEK hydroelectric and irrigation projects are booming in 1953.

have an installed capacity of 40,000 kw at a cost of $.0207 per kwh of primary energy, and the $5-million Louros Dam with an installed capacity of 5,000 kw at a cost of $0.0143 per kwh.

KTAM has ten more jobs in Greece —the most important of which are the Axios, Aliakmon, Strymon, and Peneos River reclamation and irrigation projects. These dams are all being engineered under the sponsorship of the Mutual Security Administration.

Plan hydro, irrigation jobs for Japanese island

Plans for the Kitakami River basin development in northern Honshu outline a Japanese TVA. A ten-year project to prevent damaging floods, aid irrigation, and generate power, the $315-million program will involve six dams, two of which will be finished in December while a third is being started now.

The Ishibuchi Dam, first rock-filled dam in Japan (to be completed in December) is an irrigation and power installation in the west of the Kitakami basin. Designed for an installed capacity of 14,000 kw, the 1,100-ft long structure will irrigate 20,000 acres. The other project to be finished in December, the Sarugaishi Dam on the east side of the basin, has a larger drainage area than the Ishibuchi Dam, and is designed for power and more for flood control than irrigation. With an installed capacity of 22,290 kw, this 600-ft long dam will irrigate 15,000 acres.

To the south of the Kitakami project, the Tokyo Metropolitan Office is planning construction of a hydroelectric project for a big source of power right in its own suburbs. This job, the Ogouchi Dam in Okutama, is being built with the help of the United Nations Technical Assistance Administration.

In southern Honshu the proposed Aichi Irrigation project is under study by the World Bank and Pacific Consultants, Inc. in connection with the Agriculture-Forestry Ministry of Japan.

Aussie pondage simulator solves storage problems

A high-speed electronic simulator developed in Australia makes short work of complex hydrological storage problems.

It is claimed that it can solve a first order linear differential equation for arbitrary boundary values.

The simulator was developed in the

GarWood 75

A New 3/4 yd. Shovel with Many Exclusive Features!

Gar Wood has designed the *new* "75 series" shovels to combine many new and exclusive operating features with time-tested standards of advanced design and rugged construction . . . Both the standard-duty 75A and the heavy-duty 75B have *power actuated mechanical drum clutches, right angle drive, independent chain crowd, power steering, independent travel, conical hook rollers* to eliminate rocking and an optional *hydraulic coupling* to absorb shock loads . . . Easy field conversion for crane, clam, dragline, magnet, pile driver or trench hoe work . . . Don't miss checking the profit potentials of the exclusive new Gar Wood Foundation Borer — the machine that bores and bells in one operation . . . See your dealer for details —

EASY CONVERSION IS A FEATURE

Your Gar Wood shovel can be quickly adapted for trench hoe work. Digs up to 17'10" depth, dumps at heights up to 19'3". Standard 40" dipper. 36", 31" and 26" widths optional.

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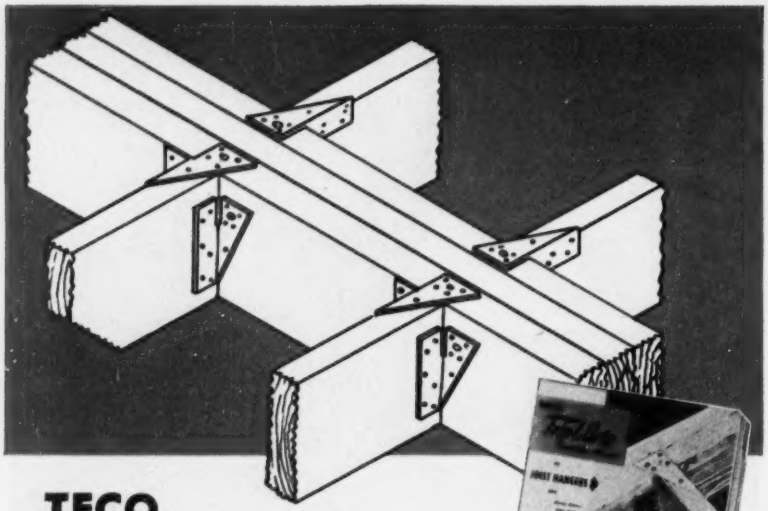

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TRIP-L-GRIP connections, including nails, cost about 50% less than the cheapest strap hanger. Adjustable on the job to joists of uneven width and depth. Can be applied to joist before installation.

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No notching, shimming and fitting of joists. Eliminate cost of ledger strips and labor required in placing and fastening them.

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By framing joists into beam face with **TRIP-L-GRIPS**, exterior wall height may be reduced, or more headroom provided under basement beams without increasing wall height.

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electrical engineering department of the University of Melbourne to simulate hydrology problems in connection with reservoirs and dams. Australian experts consider it to be a notable contribution to hydrological investigation. Here's a brief description supplied by the inventors:

"A direct electrical analogy is used, where an electrical current flowing into and out of capacitor simulates the water flowing into and out of a reservoir. The variation of voltage across the capacitor is then an analogue of the change in water level on the reservoir.

"The current flowing into the capacitor is generated as a function of time. A non-linear resistance simulates the outflow relation. Boundary values are set just before a computation starts. A timing unit controls the computing and the boundary value setting period. Solutions are repetitive and are displayed on a calibrated cathode ray oscilloscope.

"Solutions of particular problems have been carried out with an accuracy better than plus or minus 2%. Particular cases can be set up quickly and parameters can be altered easily."

International briefs . . .

Mont Blanc tunnel—France and Italy have signed an agreement looking to the construction of a long-planned $27-million, seven-and-a-half mile tunnel under Mont Blanc on the French-Italian border to make a direct route from Aosta, Italy, to Geneva. The project is expected to take three years and is to be financed by France, Italy, and Switzerland jointly.

Indian oil refinery—Caltex Oil Co. will build India's third oil refinery at Visagapatnam on India's east coast (ENR Dec. 20, 1951 p. 48). Indian investors will be invited to subscribe 25% of the total capital. This agreement sets the stage for an Indian oil industry for which the total American and British investment involved is more than $100-million—the biggest outlay by a group of private foreign investors in India in recent years.

Puerto Rican housing project—Fast nearing completion in Puerto Rico is a major public housing project. Built by the Municipal Housing Authority of San Juan, the $14-million development has 2,610 dwelling units of one to four bedrooms each. Buildings are two, three, and four stories high of reinforced concrete, covering 85 acres of land. In addition to residences there will be a community center, park, and school to serve the 15,000 inhabitants.

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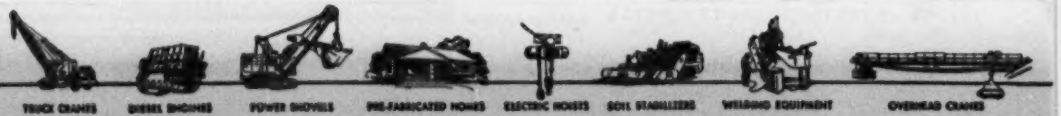


LEGAL

Rental value of equipment made idle by delays

In a recent case,[1] the U. S. Court of Claims stated: "We have held that the fair rental value of equipment rendered idle by delays attributable to the government is a proper element of damages, and this value has consistently been reduced by fifty percent to compensate for the absence of wear and tear."

(1) Warren Bros. Roads Co. v United States, 105 F. Supp. 826, U.S. Court of Claims, (June 1952).

Substantial performance

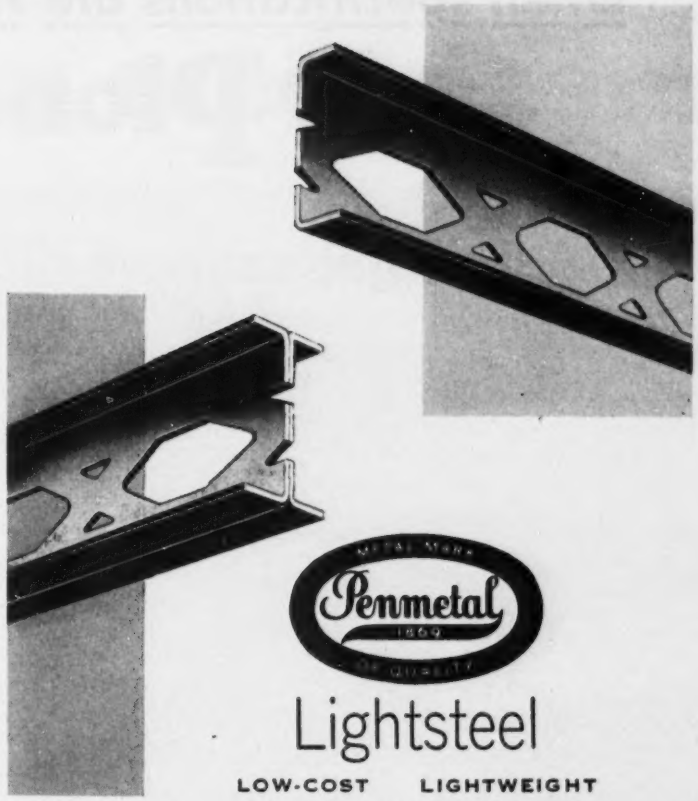
"Where a construction contract provides that a certain thing is to be done in a certain manner, or to obtain a certain result, it must be done by the contracting party if it is not impossible, and if it is not prevented by act of God or of the other party. There must be 'substantial performance.'

"Where a contractor departs from his contract but there is a benefit to the other party and the other accepts, or uses, the subject matter of the contract, the contractor is entitled to receive a fair and reasonable value for services, not exceeding the contract price. The other party may be entitled to damages for failure to perform according to contract."[1]

In the above case, the contract provided for the construction of a building "good, strong and substantial" with "ample and sufficient foundations." The building was completed and the contractor was paid the full contract price. After the owner took possession of the building, a section of the floor became badly cracked and settled below the remainder of the floor. The foundation walls also settled causing the roof to warp so that the water did not drain off the roof. The owner brought the action to recover the damages sustained as a result of the defective construction. At the trial, the jury denied the owner any recovery. The appellate court held, that upon the undisputed facts, it was clear that the contractor had not properly performed the contract and set aside the verdict of the trial court and ordered a new trial.

(1) Rockland Poultry Co. v. Anderson, 91 A. 2d 478, Supreme Judicial Court of Maine, Oct. 8, 1952.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)



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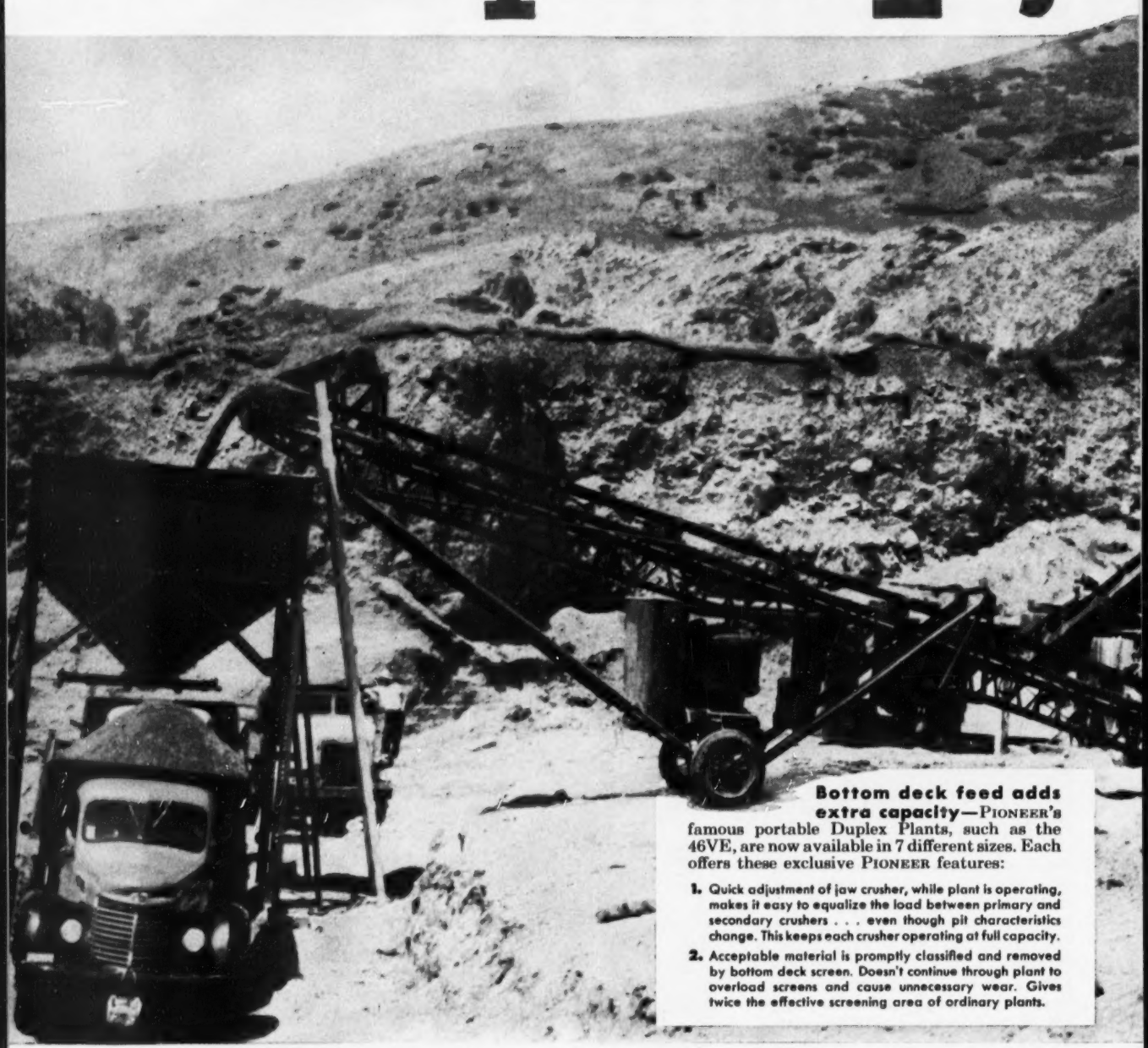
When specifications are tough...

that Pioneer Edge



Bottom deck feed adds extra capacity—PIONEER'S famous portable Duplex Plants, such as the 46VE, are now available in 7 different sizes. Each offers these exclusive PIONEER features:

1. Quick adjustment of jaw crusher, while plant is operating, makes it easy to equalize the load between primary and secondary crushers . . . even though pit characteristics change. This keeps each crusher operating at full capacity.
2. Acceptable material is promptly classified and removed by bottom deck screen. Doesn't continue through plant to overload screens and cause unnecessary wear. Gives twice the effective screening area of ordinary plants.

BUY BOTH!
HIGHER OUTPUT
LOWER UPKEEP

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helps you meet them

How Parsons & Fife overcame difficult problem

Utah state engineers know how to write a stiff set of specifications . . . and that's exactly what they did for the new 55 foot expressway between Salt Lake City and Parley's Canyon.

For this job, they required a base course of 1″ maximum, with 45-65% passing the No. 4 screen, 35-55% the No. 40, *and not more than 2% of minus 200 mesh material.*

To produce sufficient minus No. 4 and 40 material required a close roll setting, yet a ½″ clearance produced more fines than specifications allowed.

A problem? Not for Parsons & Fife of Brigham City, the contractor. Because they owned a portable PIONEER 46VE plant, it was a simple matter to open the rolls to ⅝″, then, while the plant was running, gradually close the jaw setting to the precise position at which specifications were met.

Result: Despite 52% crushing, an average production of 1750 (and sometimes 2,100) tons of specification material per 8 hour shift. Once again, a smart contractor, with the PIONEER EDGE on his side, met a tough set of specifications and still finished his job ahead of schedule.

Have the Pioneer Edge on your side—Parsons & Fife are typical of hundreds of experienced contractors who have learned that PIONEER equipment helps them produce the extra tons needed to gain a competitive advantage when bidding is close.

What are your needs? Check the coupon for details, specifications, and information on PIONEER equipment that will help *you* cut costs on your next job.

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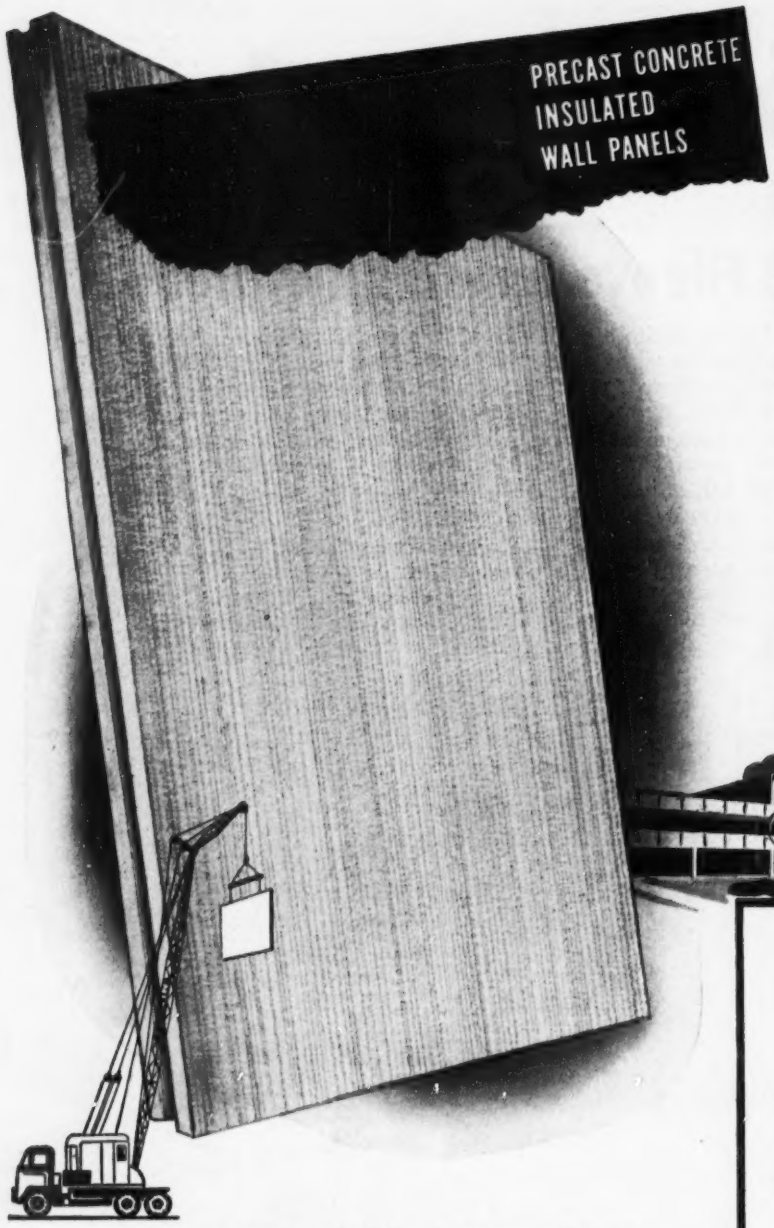
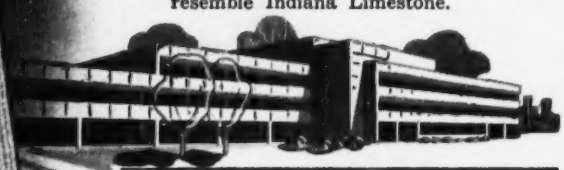


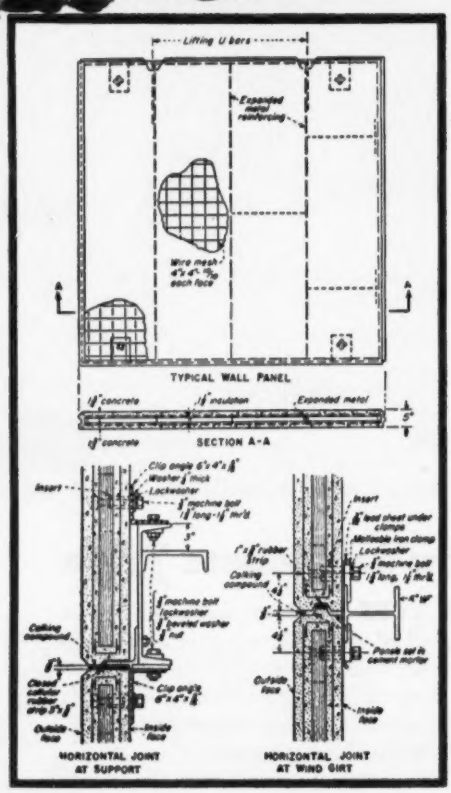
make year 'round construction possible!

Every day's a building day when you use MARIETTA precast concrete wall panels. There's no need to delay a job because of bad weather that ordinarily halts wood or masonry construction. These large, prefabricated panels close in wall areas quickly, eliminate on-the-job cutting, finishing. Each panel is a slab of finished wall. During the casting insulation is built right in—the exterior is broomed finished, and the interior is muslin finished.

QUICK ERECTION, LOW COST

Using MARIETTA precast concrete wall panels and a mobile crane, a nine man crew can erect up to 3,500 sq. ft. of finished wall a day, at a cost of $2.25 to $2.50 a sq. ft. Panels are cast with tongue and groove edges and metal inserts that bolt directly to steel framework and eliminate costly, time-consuming masonry work. MARIETTA wall panels permit you to plan your building for future expansion—they may be quickly replaced, reused as needed. In appearance they resemble Indiana Limestone.





Panels are cast solid or with insulation in a variety of sizes, ready to erect. Can be trucked to your site if it's within 300 miles of Marietta, O., Baltimore, Md., or New York City. They can also be cast at your site when advisable.

You can start planning that new building NOW without considering the weather. The MARIETTA Engineering staff will supervise the design, construction and erection of MARIETTA panels for your particular job. Write for their recommendations.

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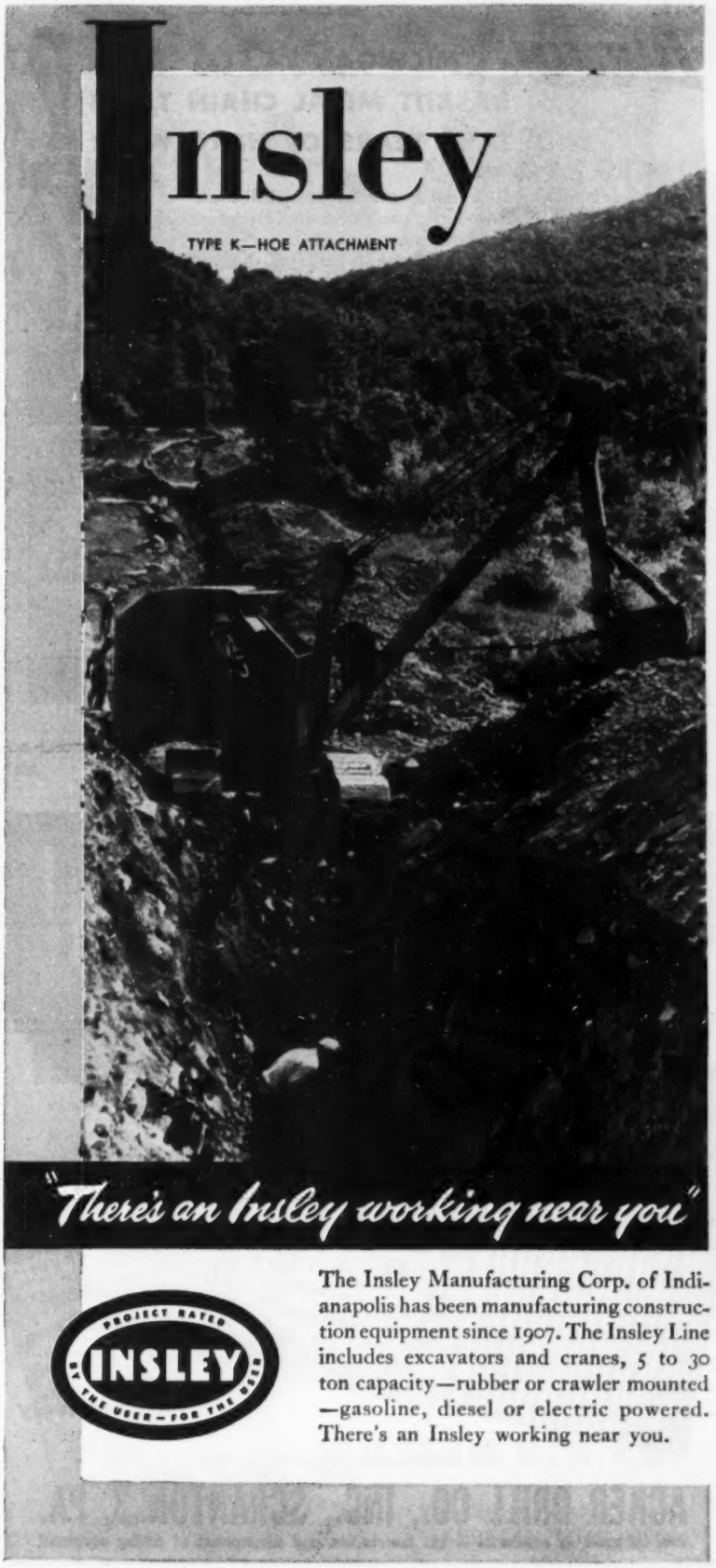
OBITUARIES

Fred H. Pond, 70, chief engineer of New York City's Bureau of the Budget, and one of the oldest employes of the city in point of service, died April 30. He had been an engineer with city departments since 1909. During 1911-12 he worked his way through the Brooklyn Polytechnic Institute's evening classes and took a civil engineering degree at N. Y. University in 1914. In 1905 he was in charge of the engineering on the reconstruction project in the Grand Central Terminal. He helped design and construct the railroad tunnels under the East River. In the first world war he was a captain of engineers in France.

Arthur H. Breed, Sr., 87, former California state senator who wrote the state's gasoline tax law which financed construction of a highway network, died April 28 at Piedmont, Calif. As a member of the Hoover-Young Commission, Breed cleared the way for construction of the San Francisco-Oakland Bay Ridge. He authored California's Motor Vehicle Act and was chairman of the group which made a survey leading to a comprehensive state road system. He developed residential projects in Alameda and Contra Costa counties as head of A. H. Breed & Sons.

Cyrus A. Melick, 70, until recently district bridge engineer for the Iowa District office of the bureau of Public Roads at Ames died in Clarinda, Iowa, April 24. He was graduated from Ohio State University in 1903 and received a Doctor of Civil Engineering degree there in 1910. He became an associate professor of civil engineering at Michigan State College, and later bridge engineer for the Michigan State Highway Department. His work with the Bureau of Public Roads began in 1934. He acted as bridge engineer in the South Carolina District office; Division office at Washington, D. C.; and in the Iowa District office.

Robert L. Latham, 65, civil and structural engineer, died in Los Angeles, Calif., recently. Formerly he was chief engineer of Walker and Isen Co. Among the buildings on which he did the structural work are El Cortez Hotel, San Diego; United Artists Theater Bldg. and the Wilson Bldg., Los Angeles; and the restoration of the Santa Barbara Mission, Santa Barbara. During the last 10 years he was a structural engineer for North American Aviation, Inc.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TYPE K—HOE ATTACHMENT
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The Insley Manufacturing Corp. of Indianapolis has been manufacturing construction equipment since 1907. The Insley Line includes excavators and cranes, 5 to 30 ton capacity—rubber or crawler mounted—gasoline, diesel or electric powered. There's an Insley working near you.

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Over 30 years of experience in the manufacture and development of drilling equipment

OBITUARIES

Edward O. H. Cillis, 75, former construction company executive, died April 20 in Rochester, N. Y. He was vice-president of the D. C. Weeks Co., Rochester contractors, and had supervised construction of many hotels in several states. Following dissolution of the Weeks firm in 1933, Mr. Cillis acted as consulting expert on construction loans for the Central Savings Bank of New York City.

William C. Maney, 43, vice-president of the C. J. Maney Construction Co. of Boston, Mass., died recently. He had been with his father in the construction business for 25 years, and had participated in the building of many housing projects in Massachusetts and many of the major highways in New England and other states.

Dennis D. Cutler, 72, retired civil engineer of Beaumont, Tex., died at Port Arthur, April 26.

Charles M. Corban, 61, supervisor of engineers for the Ohio Bell Telephone Co., and with that firm for 42 years, died April 26. He lived in Columbus for 25 years.

Joseph J. Butler, 78, Chicago city superintendent of streets, died April 30 on his 78th birthday a half hour after his wife was fatally stricken. Butler had been employed by the city since 1907, when he started as a ward superintendent.

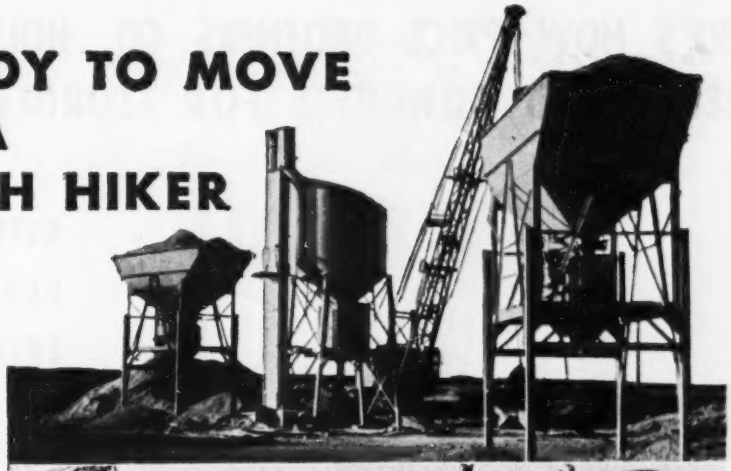
Spillway design studied by Texas engineers

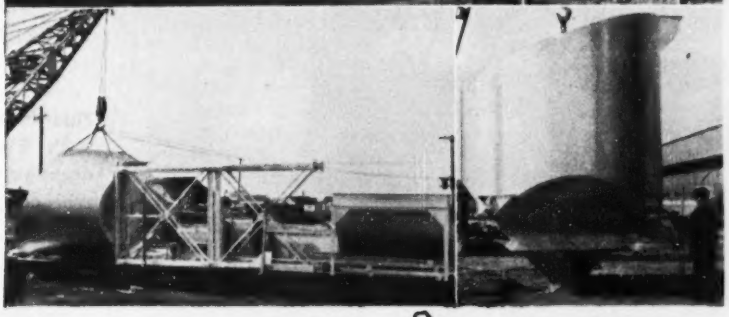
Working with a model dam built in the University of Texas hydraulics laboratory, university researchers and members of the State Board of Water Engineers are studying spillway design for small dams in an attempt to determine sound practices for passing flood waters from a filled reservoir to the streambed below.

According to Walter L. Moore, associate professor of civil engineering and project director, many stock tanks and small lakes have been destroyed during rains because of inadequate spillways. "We expect the investigation to save considerable money for farmers, stockmen and small municipalities and to promote water conservation."

Researchers will construct various spillway designs and test performances with artificial floods and other waterflow patterns, recording results with motion pictures, still photographs and sketches.

READY TO MOVE AS A HITCH HIKER





Complete bulk cement plant on a flatcar. Tank is swung around and laid flat on the ground.

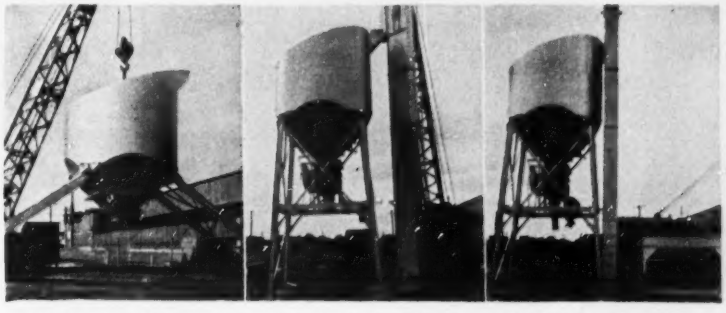
Tank is lifted just clear of ground while men raise column frames with chain hoists and pin them in place.

MANY BUTLER PORTABLE BULK CEMENT PLANTS HAVE BEEN MOVED MORE THAN 50 TIMES

Unless you're filling the Black Hole of Calcutta with concrete, portability is an important factor in your Roadbuilders' Plant. It's no trick at all for 2 men and a crane to set up, knock down and move a Butler Plant.

One-piece tank construction, pin-connected columns and bracing, properly placed lifting lugs and ingenious design all contribute to the amazing portability of Butler plants. Their component parts — bins, screw conveyors, elevators and batchers — are Butler-engineered to save time and labor while assuring proper flow of cement.

Overhead storage capacity of the Butler 250 barrel plant is ample for any paving job, particularly when supplemented by 400 to 675 barrel overflow bins. A complete combination plant will provide at least 1½ carloads capacity — maximum protection against shutdowns or other costly delays.



Going up. Legs hinge down into place with cross bracing attached. Lift is not high.

Assembled with chain and buckets, elevator is swung into place.

Complete plant is ready to operate as man makes final adjustment on batcher.

For complete information on Butler Portable Bulk Cement Plants as well as Portable Batching Plants, your postcard will bring you Butler Bulletin 205.

BUTLER BIN CO.

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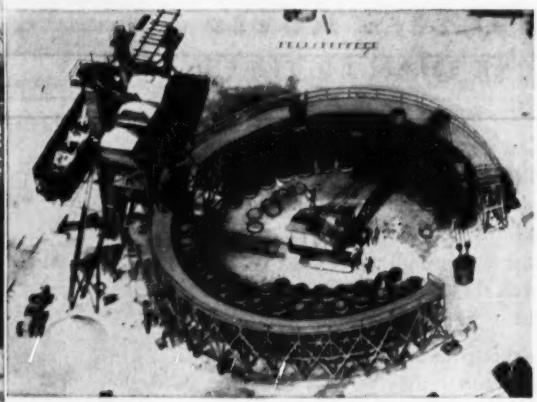
Job calls for 8 1/2 Miles of Prestressed Concrete Pipe.

This is a GTES 100-yd. combination bin with EWEH 2-yd. AggreMeter, 75 TPH aggregate elevator, 50 TPH cement elevator with supplementary ground storage.



Upper photo shows the complete installation sold by Bode Finn of Dayton, Ohio

IT TAKES MORE THAN CAPACITY TO MAKE HIGH STRENGTH CONCRETE INTO 8½ MILES OF WATER LINE

It takes accurate batch control and fully portable equipment. Price Brothers Co. of Dayton, Ohio, are getting both in their Erie Portable unit on location near Miami, Florida.

Using a formula of Oolite rock, lake sand and liquid admixture, the plant you see in the photo turns out a batch of high strength concrete every 7 minutes.

Said Mr. Harry S. Price, Jr., Vice President, "We bought our first piece of Erie equipment back in 1925, and we're still using it. I am happy to say that our experience with Erie Portable on the Miami job is completely satisfactory."

Erie installations are engineered to do the tough jobs. That's why they work better . . . longer. When you consider batching and mixing equipment be sure to get the Erie story. You'll be glad that you did.

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BOOKS

Transcontinental highway

U. S. 40: Cross Section of the United States—By George R. Stewart. 409 pp. Houghton Mifflin Co., 2 Park St., Boston. $5.00.

There is little that is strictly technical about this book, the first major portrait of a modern U. S. highway, but nevertheless it is bound to be of great interest to civil engineers and road builders, especially if they are at all historically minded.

U. S. 40 has an unmarked beginning at the Boardwalk in Atlantic City, N. J., and extends westward 3,091 miles across the United States to its terminus just across the Bay Bridge in San Francisco.

For much of its course in the East, U. S. 40 follows the route of the old National Road of the early 19th century, a road which was the successor of the Cumberland Road and other pioneer trails. It climbs through the Appalachians and the Blue Ridge Mountains; it follows the old Conestoga route through the Midwest; it crosses the Mississippi at St. Louis; picks up the pioneers' trails across the Kansas prairies and the high plains of Colorado to the Rockies; traverses the dry plateaus of Utah; passes Great Salt Lake; winds through the snowy passes of the Sierras; and then drops down over the fertile Central Valley of California, and so to the Pacific waterfront of San Francisco.

Mr. Stewart says that perhaps the most pressing need along the route is the by-passing of towns and cities. As it is, this highway passes through the centers of such cities as Baltimore, Columbus, Indianapolis, Kansas City, Denver and Salt Lake City. However, many of the smaller towns have been by-passed—notably by the freeways in California and by the new 4-lane construction in Missouri.

New Engineering Books . . .

Route Location and Surveying—Third Edition. By T. F. Hickerson. 543 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $6.00.

Estimating Construction Costs—by R. L. Peurifoy. 315 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $5.50.

Engineering Valuation and Depreciation—Second Edition—By the late Anson Marston, Robley Winfrey and Jean C. Hempstead. 508 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $8.00.

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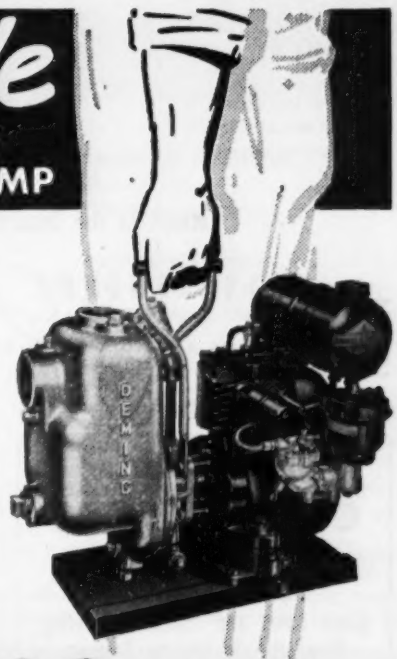
Portable SELF-PRIMING CENTRIFUGAL PUMP



One man can carry a Deming Fig. 3304 Self-Priming Centrifugal Pump. Compact size is only 20" x 13" x 19". Many applications for drainage and water-handling service.

Pump is bronze fitted, all-iron, or all-bronze construction. Impeller mounted directly on engine shaft. Double rotary seals. Both suction and discharge are 1½". Capacity 10 G.P.M. at 80 ft. head to 90 G.P.M. at 15 ft. head.

Unit is powered by a Briggs & Stratton Model 1½ H.P., 4-cycle, air-cooled gasoline engine having a high tension magneto. Net weight of complete unit 84 lbs.

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- It has a permanently hard, impervious surface, unaffected by time, abrasion and exposure to the elements.
- It won't corrode or stain.
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BOOKS

ILLUMINATION ENGINEERING — Second Edition. By Warren B. Boast. 340 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $7.00.

ATMOSPHERIC POLLUTION, Its Origins and Prevention—By A. R. Meetham. 268 pp. Pergamon Press Ltd., 2, 3 & 5 Studio Place, Kinnerton Street, London, S. W. 1. $4.90.

TABLES AND FORMULAS for Fixed End Moments of Members of Constant Moment of Inertia—By Paul Rogers. 95 pp. Frederick Ungar Publishing Co., 105 East 24th Street, New York 10, N. Y. $3.75.

WOOD PRESERVATION—Second Edition. By George M. Hunt and George A. Garrett. 417 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $7.50.

GOVERNMENT'S ROLE IN ECONOMIC LIFE —By George A. Steiner. 440 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $6.00.

PROCEEDINGS OF THE SYMPOSIUM ON EARTHQUAKE AND BLAST EFFECTS ON STRUCTURES: Los Angeles, June, 1952 —Earthquake Engineering Research Institute, University of California, Berkeley 4, Calif. $5.00.

INTRODUCTORY ENGINEERING MATERIALS —By Irving H. Cowdrey and E. L. Bartholomew. 424 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $6.00.

MECHANICS OF MATERIALS—By Seibert Fairman and Chester S. Cutshall. 420 pp. John Wiley & Sons, 440 Fourth Avenue, New York 16, N. Y. $5.75.

MATERIALS HANDLING—By John R. Immer. 591 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $8.00.

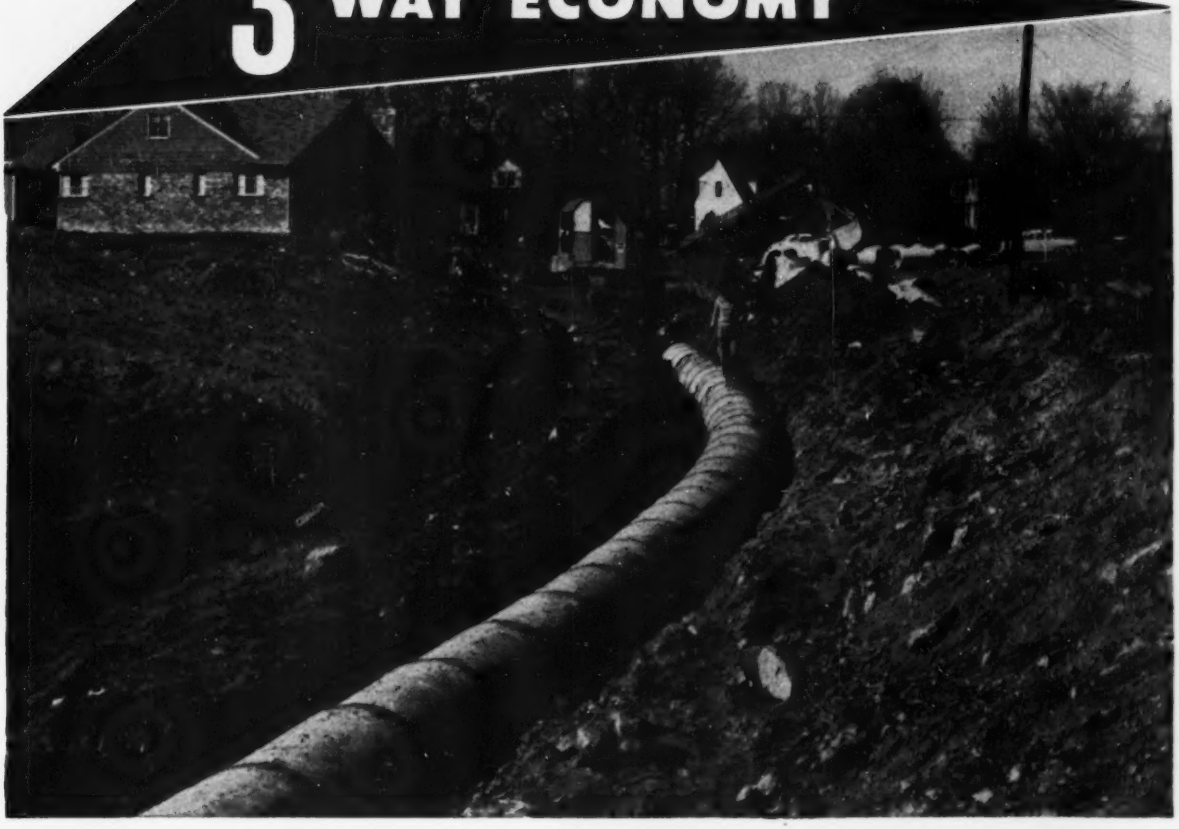
WATER SUPPLY AND SEWERAGE—Third Edition. By Ernest W. Steel. 582 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $8.00.

SEWERAGE AND SEWAGE TREATMENT—Seventh Edition. By Harold E. Babbitt. 674 pp. John Wiley and Sons, 440 Fourth Avenue, New York 16, N. Y. $8.00.

A MANUAL OF ENGINEERING DRAWING for Students & Draftsmen—Eighth Edition. By the late Thomas E. French and Charles J. Vierck. 715 pp. McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y. $8.00.

DRAFTING BY THE MODEL METHOD—By John B. Musacchia, Henri A. Fluchère, and Melvin J. Grainger. 143 pp. Arco Publishing Co., 480 Lexington Ave., New York 17, N. Y. $3.50 paper; $5.00 cloth.

3 WAY ECONOMY



- The actual cost of a pipe installation depends on several factors. One is time. Our 8 plants, strategically located, give prompt shipments and keep freight costs down.
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Tylox Flexible Rubber Coupled Vitrified Pipe	Ship Lap Wall Coping	Chimney Pots
Aerodrane Filter Block	Septic Tanks	Fire Brick
	Drain Tile	Fire Clay

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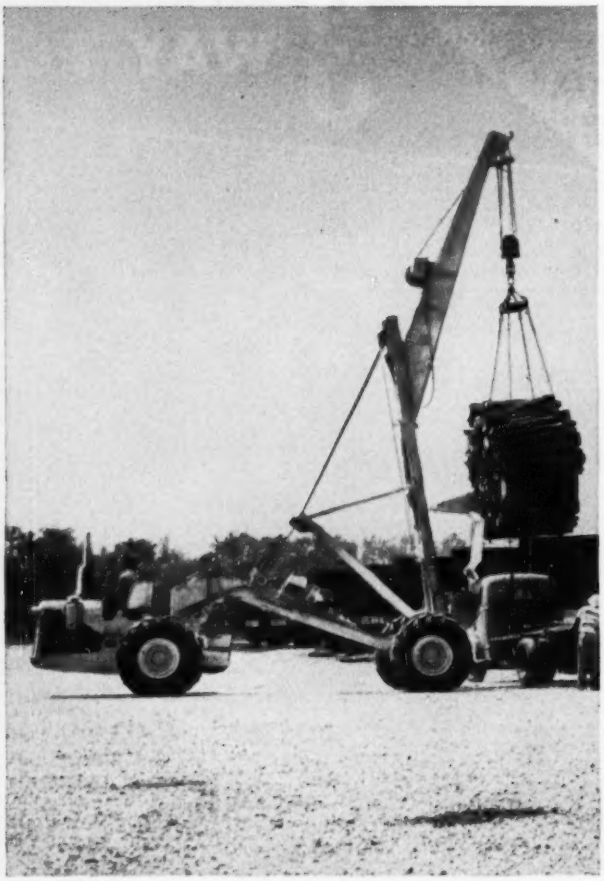
LeTourneau pictures of the month . . .

TURNS 180° IN 15 FT— Even soft footing and a narrow fill didn't slow Ernest Markham's 6 C Tournapulls on their 600,000-yd road job near Grasston, Minnesota.

. . . with power steer, big tires, and power-proportioning differential, Tournapulls waded through soft material, spreading load of lumpy yellow clay and turning at same time . . .

. . . As last of 10 pay yd load was spread, Tournapulls completed 180° turn and hurried back to cut. Each of the 6 units moved 62½ pay yds hourly over a 6800-ft cycle.



CARRIES FULL LOAD ANYWHERE— This load of pulpwood weighs about 10 tons, yet Tournacrane handles it without outriggers, transports it smoothly without swaying. Low-pressure tires cross tracks, pavement without damage. Photo was taken in South Carolina.

1 PUSHER HANDLES 8 SCRAPERS— The remarkable part is that the 8 scrapers — all D Tournapulls — were on a short 1000-ft haul and completed a cycle every 2.6 min. The Tournatractor-pusher heaped a 5½ to 6 pay yd load every 20 sec . . . 160 loads in a 50-min hr. Load distance in topsoil and sandy loam averaged 25 ft. Tournatractor's fast positioning enabled it to back up and spot in just a few seconds. With the 9 LeTourneaus, Frysinger Construction Company graded 150,000 cubic yds (160 acres) in about a month. Work was done at Circleville, Ohio, for a new industrial film plant there.

ADVERTISEMENT

performance reports from around the world

2½ MIN TO LOAD — It isn't often you see a big rig like a D Tournarocker loaded by a front-end loader. But Ft. Hartford Stone Quarry of Olaton, Kentucky teams the two to provide 100% of their limestone . . . and does it profitably! Their 9-ton Tournarocker takes 5 to 6 passes from the 1¼-yd bucket . . . is loaded with shot rock in 2 to 3 minutes. Complete 600-ft cycle to crusher takes 4 minutes. "Thoroughly sold on Tournarocker for this work," says A. C. Hall, Company President.

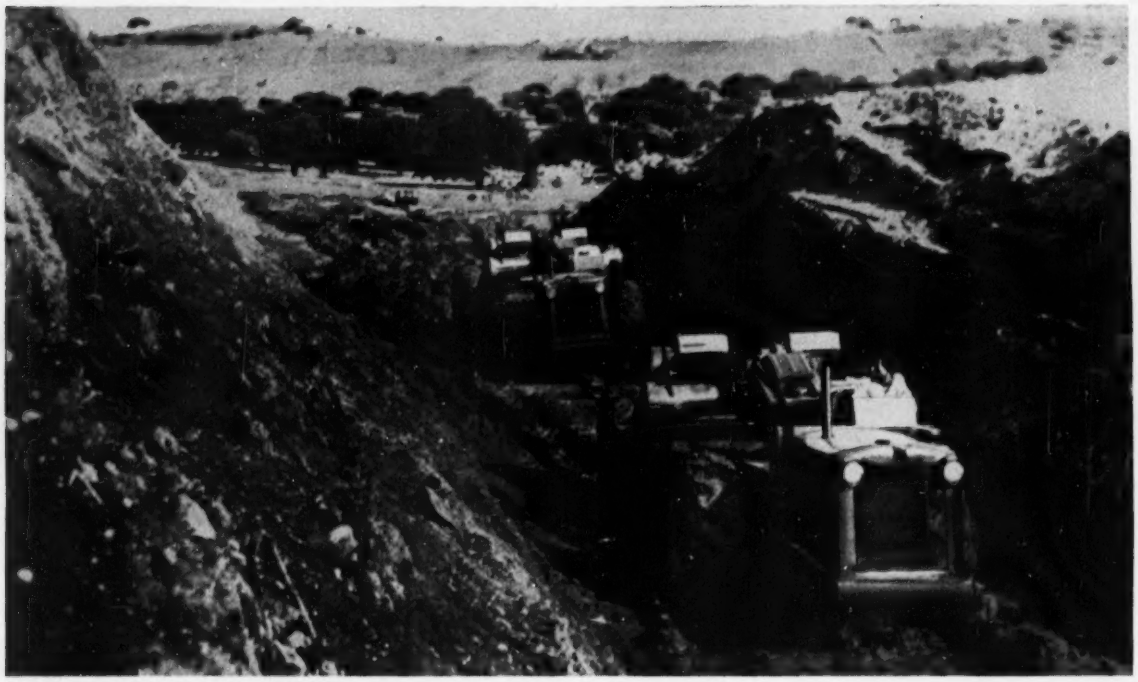
BEATS TRUCKS, 2½-1—Filling a sinkhole which developed on a township road near Walkerton, Ontario, Contractor Ed Waechter moved over 44,300 yds of sand with 2 D Tournapulls, 17,700 yds with 2 dump trucks. During typical 10-hr shift, each pusher-loaded 7-yd Tournapull hauled 100 loads; each shovel-loaded 5-yd truck, working same cycle, 50 loads. Day's production: 700 yds for each D Tournapull, 250 yds for each truck.

1 BUNGALOW COMING UP — There's enough lumber in this skid of Douglas fir to build a complete house. Load, about 7000 bd ft, is being towed by a Tournatractor from woods to mill. Output of 40,000 bd ft per shift doubles that of a crawler, says California Owner Roy Monschke.

LAWN ORNAMENT — We imagine one Cudahy, Wis. housewife got quite a shock the morning she saw this Tournapull practically on her front porch. She needn't have worried. Tournapull's air brakes provide ample protection for maneuvering in close quarters. And it finished the road widening job fast . . . moving 10 loads (120 pay yds) hourly on 1800-ft cycles. Rig is owned and operated by Royce Young, Auburndale, Wis.

(Continued on next page)

LeTourneau pictures of the month (Cont'd) . . .



CONQUERING HEROES—GI's who made the 1943 landing in Sicily will long remember the bloody battle for Gela Airport. It's noisy around Gela again today, but the noise is for a peaceful purpose. It comes from 2 D Tournapulls and 2 Crawlers with LP Scrapers as they help move 740,000 cu yds for an 18-mile railroad grade to connect Gela and Caltagirone. Tournapulls shown are self-loading heavy, sticky clay. They belong to Mario and Giorgio Franchetti of Rome.

100 YDS PER HR WINS JOB—On competitive demonstration at a Greenville (N.C.) asphalt plant, this D Tournapull stockpiled 20 loads of sand hourly . . . Two 91 hp crawlers, working same 450-ft haul brought in only 6 loads each hourly. All rigs self-loaded 5 bank yds per load. Based on results, Company President A. J. White bought the Tournapull.

PLOWS 1½ ACRES HOURLY — Preparing land for cotton planting near Pecos, Texas, Tournatractor deep-plows 1½ to 2 acres hourly. That's about 6 miles of furrow, with each furrow dug 12 to 14 inches deep in the hard, dry sandy clay loam. Biggest farm tractors, or heavy-duty crawler-tractors, can plow only ⅓ to ⅕ as much, according to the Texas owner.

15c PER YD — For crusher, A. T. Waltenburg, Jackson County (Oregon) Hwy Supt, needs 500 tons of gravel per 8-hr day. He brought in a 9-ton D Tournarocker to replace 2 trucks. The one Tournarocker averages 64 yds hourly to deliver all gravel crusher can handle. "A real money-saver," says Waltenburg. "Moves dirt for under 15¢ a yd." Major saving is on repairs. Tournarockers' big tires absorb shocks . . . has no frame, hinged axles, hydraulics . . . hence is seldom in shop.

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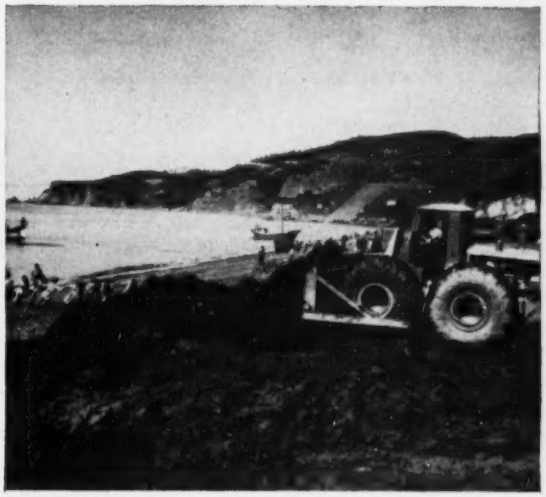
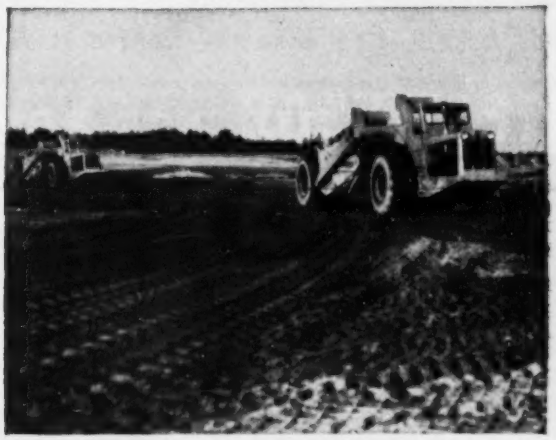
performance reports from around the world



HEAVE-HO— Two ages meet on the Black Sea at Kozlu, Turkey. In the background, natives beach fishing boats just like their ancestors did hundreds of years ago. In the foreground, a modern high-speed Tournatractor lifts the loads from hundreds of aching backs as it levels spoil from Turkey's newest coal mine.



812 YDS OF SAND DAILY— Taking a cue from parading sailors at Lakehurst Naval Air Station, N. J., Tournapulls come and go like clockwork. The 3 "C's" shown are part of Reid Contracting Company's fleet of 5, being used at Lakehurst to help move 1,500,000 yds for runway and mat extension. "These machines give superior performance where going is roughest," says Supt Ray Saunders. Each unit has averaged 812 pay yds per 9-hr day for 6 mos. Cycles, 7000 ft.

NO TIRE BREAKAGE — After months of double-shift hauling of Florida pit rock, Maule Industries Inc report no tire troubles on their 18-ton Tournarocker. Its big 21.00 x 25 single tires rolled easily over blasted rock or quarry floor. Smaller 6 and 12 yd trucks, used on same hauls lost time due to blowouts and other tire damage. This was caused mostly by rocks wedging between the duals, or concentration of weight on a single small tire when rolling over rock fragments. Tournarocker and trucks brought shot limestone 1.8 to 2.2 miles from pit to crusher. For complete facts on this and other units shown on these pages, write **R. G. LeTourneau, Inc., Peoria, Illinois.**

LETOURNEAU EQUIPMENT LET

Tournapull, Tournarocker, Tournacrane—Trademark Reg. U.S. Pat. Off. Tournatractor—Trademark Pic-396-G

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **R. I., Newport**—MARINE RAILWAY—B.A. 5/19—P. Wks. Dpt. Officer in Charge of Constr., Naval Station, rehabilitation Marine Railway, remove and replace railway cradle, planking, cable, repairs, painting, appurtenances, etc. Coasters Harbor Island, NOY 75899, Spec. 36661.

▲† **Me., Limestone**—MAINTENANCE HANGAR—B.A. 5/28—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., double cantilever maintenance hangar, Limestone Air Force Base, ENG-19-016-53-104. $5,000,000. Plans deposit $25, refundable. Kuljian Corp., 1200 N. Broad St., Phila., Pa., engrs. CD 4/24.

Mass., Rockport—B.A. 5/28—Town, Special Water Comm., Town Hall, Quarry Reservoir, Gravity dam, etc. $60,000. Plans deposit $25, refundable. Bids 10/30 rejected. Metcalf & Eddy, 1300 Statler Bldg., Boston, engrs. CD 10/24.

† **Me., Limestone**—ARMAMENT and ELECTRONICS SHOP—B.A. About 6/5—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., armament and electronics shop, Limestone Air Force Base, Eng-19-016-53-123. Under $1,000,000. CD 9/19/51.

† **Me., Limestone**—AAA SUPPORT FACILITIES—B.A. About 6/6—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., constr. AAS support facilities, Limestone Air Force Base, Eng-19-016-53-129. Under $1,500,000. CD 9/19/51.

† **Me., Limestone**—CHAPEL—B.A. About 6/6—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., chapel, Limestone Air Force Base, Eng-19-016-53-128. Under $200,000. CD 9/19/51.

▲† **N. H., Portsmouth**—CENTRAL HEATING PLANT—B.A. On Or About 6/12—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., central heating plant, Portsmouth Air Force Base, Eng-19-016-53-1. Approx. $1,000,000. CD 12/27/51.

BIDS ASKED—BUILDINGS

Conn., New Haven—HOUSING—B.A. 5/28—City Housing Auth., 195 Church St., PHA Conn 4-7 Housing exten., Elm Haven, Ashmun, Webster and Canal Sts. $750,000. Plans deposit $100. Hubbard, Lawless & Blakely, 110 Whitney Ave., engrs. Schilling & Goldecker, 405 Temple St., archts. CD 9/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—State Hy. Dpt., State House, Augusta,

Verrier Constr. Co., 65 Commercial St., Portland, Me. CA **$2,037,397**, bridge reconstr. over Penobscot River, Bangor and Brewer. Bids Apr. 29. CD 4/2.

† **First Coast Guard Dist.**, 447 Commercial St., Boston, Mass. rejected bids, placing rip rap, Whale Light Station, Portsmouth Harbor, Inv. 50-708-53, NEW HAMPSHIRE. LB **$115,900**. CD 4/1, under LB.

John McCourt Co., 910 Huntington Ave., Boston, Mass. CA **$71,966**, development of play areas Orchard Park, Roxbury, BOSTON, MASS. City, Park Dpt., 33 Beacon St., Boston, Mass. Bids Mar. 31.

▲ **RHODE ISLAND**—State Purch. Agt., State House, Providence,

S. & M. Constr. Co., 30 Salmon St., Providence, R. I. CA, **$1,124,561**, est. $1,150,000. road and bridge, Tower Hill Rd., North Relocation from Cranston corner Rotary to Shady Lea Contr. No. 5302, F.A. Proj. F-05 (1), Contract 3, North Kingstown. Bids Apr. 15. CD 4/22, under LB.

Capaldi Bros. Constr. Co., 278 Silver Spring St., Providence, R. I., CA. **$257,718**, sewer constr. PROVIDENCE, R. I. City, City Hall, Providence, R. I. CD 11/17/50.

D. Palmisaro & Sons, Bristol, Conn., LB. **$99,807** Contract H, sewers, BRISTOL, CONN. City, C. M. Pfennig, city engr., City Hall, Bristol, Conn. Bids Apr. 27. CD 4/15.

BUILDINGS

LOW BIDS AND CONTRACTS

J. Slotnick Co., 99 Chauncey St., Boston, Mass. CA Est. $700,000. TELEPHONE BLDG., Pleasant St., ARLINGTON, MASS. New England Telephone & Telegraph Co., 185 Franklin St., Boston, Mass. Bids Apr. 28. CD 4/24.

C. J. Maney Co., Inc., 173 Bedford St., Lexington, Mass. CA Total est. **$150,000**, caissons for meat WAREHOUSE East Way, BOSTON, MASS. Thomas F. Kinnealy & Co., 2 Faneuil Hall Market, Boston, Mass. A. B. Sziklas, 1571 A Washington St., Newton, Mass., archt. CD 3/11.

J. F. Rand & Son, 57 Sudbury St., Boston, Mass. CA **$809,241**, est. $800,000. Michael Driscoll Elementary SCHOOL, 64 Westbourne Terrace, BROOKLINE, MASS. Town, Supt. Schools, R. B. Tyler, chn. Bldg. Comn., Town Hall, Brookline, Mass. CD 3/23, under LB.

▲ **Southern N. E. Construction Co., Inc.**, 983 Main St., Hartford, Conn., CA, **$1,489,000**. Contract E 53-147 Police ADMINISTRATION and COURT bldg., 160 Talcott St., HARTFORD, CONN. City, 550 Main St., Hartford, Conn. Bids Mar. 26, awarded Apr. 23. CD 4/1, under LB.

▲ **City, New London Housing Auth.**, 97 Laurel Dr., New London, Conn., rejected bids Apr. 21, MR-48, 160-unit moderate rental HOUSING, NEW LONDON, CONN. LB. **$1,948,000**. Will re-advertise. CD 4/24, under LB.

J. S. Nasin, 392 High St., Willimantic, Conn., LB. **$910,000**, MR 50 moderate rental HOUSING, WILLIMANTIC, CONN. City Housing Auth., 49 West Ave., Willimantic, Conn. Bids Apr. 27. CD 3/31.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. Y., New York—B.A. 5/19—Bd. Water Supply, 120 Wall St., Zone 5, Contr. 422, furnishing, testing, del. two 60 in. by 42 in., one 12x20 ft., and one 12x16 in. bronze nozzle type, Venturi meters, instrument assemblies, bronze castings, electric cables and appurtenances for Downsville Release Water Chamber and Neversink Intake Chamber of the Delaware System. CD 6/16/44.

N. Y., New York—B.A. 5/20—Dpt. P. Wks., Municipal Bldg., Zone 7, reconstr. center pier fender of 145th Street Bridge over Harlem River between Manhattan and Bronx Boros. Plans deposit $20.

PENNSYLVANIA—B.A. 5/25—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg,

Montgomery Co.—grading, drainage, paving 3.32 mi. in Upper Merion Twp. CD 10/26/50.

BIDS ASKED—BUILDINGS

Md., Towson—SCHOOL—B.A. 5/19—Baltimore Co. Bd. Educ., Aigburth Rd., Hawthorne Elementary School, auditorium, gymnasium, library, Kingston Rd., Middle River. $800,000. Plans deposit $40. Gaudreau & Gaudreau, 330 N. Charles St., Baltimore, archts. CD 11/26.

▲ **Pa., Pittsburgh**—SCHOOLS—B.A. 5/20—School District of Baldwin Twp. Auth., Brentwood, Pittsburgh, 1 and 2 story, 300 x 400 ft., irregular, brick, block South Junior High School, $1,250,000, Plans deposit $50, CD 11/28; 1 story, 61 x 72 ft., and 2 story, 50 x 72 ft., brick, block, steel McGibney Grade School addn., Baldwin Twp., $500,000. Plans deposit $25. Altenhof & Bacon, Park Bldg., Pittsburgh, archts.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

▲ **Pa., Elkins Park**—SCHOOL—B.A. 5/21—Cheltenham Twp. School Dist., Elkins Park, Junior High School and imprvs., $2,500,000. Earl Pallabach Assoc., 16 S. Broad St., engrs. Heacock & Platt, 152 N. 15 St., Phila., Pa., archts. CD 2/26.

▲ **Pa., Havertown**—SCHOOL—B.A. 5/26— Haverford Twp. School Dist., Havertown, Chatham Park Elementary School, $1,000,000. Howell Lewis Shay, Packard Bldg., Phila., Pa., archts. CD 9/9.

▲ **Pa., Phila.**—HOUSING—B.A. 5/26—Phila. Housing Auth., 42 S. 15 St., Phila., Mill Creek Housing. $2,565,000. Bids 3/31 rejected. Kahn McAllister & Day, 138 S. 20 St., archts. CD 4/9, under LB.

N. Y., Brooklyn—HEALTH CENTER—B.A. 5/27—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, general constr.; plumbing; heating and ventilating; electrical work and lighting for constr. of Bedford Health Center, Prospect Pl. and Troy Ave., Brooklyn Boro. Plans deposit $35.

▲ **Pa., West Chester**—SCHOOL—B.A. 6/3—West Chester Joint High School Bd., West Chester, Junior High School, $1,772,500. Baader, Young & Schultze, 1500 Walnut St., Phila., Pa., archts. CD 4/9/52.

SOON LETS CONTRACT—BUILDINGS

Pa., Phila—ORPHANAGE—St. Basil's Academy, 701 Fox Chase Rd., soon lets contract (first unit) orphanage. $500,000. Gilboy & O'Malley, 3 N. 13 St., Phila., Pa., archts. CD 4/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Schutt Constr. Co., Inc.**, Genoa, Wis., CA. **$1,135,500**. Contr. 416, clearing, grubbing westerly half Pepacton Reservoir, NEW YORK, N. Y. Bd. Water Suppiy, 120 Wall St., New York 5, N. Y. Bids Mar. 31. CD 3/12.

Edenwald Contr. Co., 1061 E. Tremont Ave., New York 60, N. Y., CA **$68,634**, Contr. E, roads, drains, landscaping Port Richmond Sewage Treatment Works, Richmond Boro, PORT RICHMOND, N. Y. Dpt. P. Wks. Municipal Bldg., New York 7, N. Y. Bids Mar. 17. CD 2/17.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy Dpt. Office Bldg., 1035 Parkway Ave., Trenton,

Merritt-Chapman & Scott Corp., 260 Madison Ave., New York 16, N. Y., CA, **$1,956,673** combined bid Bass River Bridge substructure in Bass River Twp., Garden State Parkway, Contract No. 37, Sect. 10, Burlington Co., and Mullica River Bridge substructure from Bass River Twp. to Galloway Twp., Atlantic City Garden State Parkway, Contr. 74, Sec. 10, Atlantic Co. Bids Apr. 9, awarded Apr. 29. CD 4/14.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton,

Franklin Contg. Co., 12 Central Ave., Newark, N. J., LB, **$807,945**, Contract 38, bridges for Garden State Parkway at Red Hill Rd., Nut Swamp Rd., W. Front St., and Earle Naval Ammunition Depot, Holmdel and Middletown Twps., Monmouth Co.;

Poirier & Mc Lane Corp., 33 W. 42 St., New York, N. Y., LB, **$1,297,259**, Contract 40, superstructures at Swimming River and Pine Brook; bridges at Newman Springs Rd., Sycamore and Tinton Aves., incidental grading, drainage and paving Section 7, Garden State Parkway, Middletown Twp. and New Shrewsbury, Monmouth Co. Bids Apr. 30. CD 4/14.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Eastern Engineering Co. 40 N. North Carolina Ave., Atlantic City, N. J., LB, **$2,295,592**, Contract No. 33, grading, drainage from Mullica River Interchange to East Greenbush Rd. for Section 10 Garden State Parkway, Bass River Twp., Burlington Co. Bids Apr. 30. CD 4/14.

† **Bryan Constr. Co., Inc.**, 171 River Rd., North Arlington, N. J., CA, **$778,563**, readiness hangars, etc. McGuire Air Force Base, ENG-36-109-53-267, WRIGHTSTOWN, N. J. U. S. Eng., 121 N. Broad St., Phila., Pa. Bids Feb. 4. CD 2/18, under LB.

† **Baylor Constr. Co.**, 210 E. 40 St., New York, N. Y., LB, **$668,679**, sewage treatment plant and pumping station, McGuire Air Force Base, ENG-36-109-53-421, WRIGHTSTOWN, N. J. U. S. Eng., 121 N .Broad St., Phila., Pa. Bids Apr. 28. CD 4/22.

▲† **Ferber Co.**, 16 Johnson Ave., Hackensack, N. J., CA, **$1,153,573**, warehouse, McGuire Air Force Base, ENG-36-109-53-263, WRIGHTSTOWN, N. J. U. S. Eng., 121 N. Broad St., Phila., Pa. Bids Jan. 16. CD 1/21, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Allegheny Asphalt & Paving Co., Inc., 801 Bingham St., Pittsburgh 3, Pa., LB **$1,284,403**, constr. 3.52 mi. crushed aggregate base with bit. surf. 16 to 50 ft. variable; 7 rein.-con. structures over tributary to Bonnie Brook; two I-beam bridges and one rein.-con. bridge over Bonnie Brook; bit. surf. on 2 railroad crossings and grading, drainage, U. S. Rte. 422 Butler Co.;

Hempt Bros., Camp Hill, Pa., LB **$1,511,311**, crushed aggregate base with bit. surf. 24 ft. wide, 7.43 mi. northerly; 3 rein.-con. structures over Indian Grove

(Continued on page 113)

Holes loaded and ready to shoot.

Peak of blast. Confinement is good.

Spent gases appear—air blast avoided.

Well-placed rock pile. Throw controlled.

the inside story

Here's how ROCKMASTER® blasting helps control throw

THIS blast area on By-pass Route 22, Easton, Pa., was adjacent to gasoline storage tanks, homes, a parking lot, business establishments and a precision instrument factory. It was a ticklish blasting problem for Central Pennsylvania Quarry, Stripping and Construction Co., contractors on the job. Absolute control was a "must." Flying rocks had to be minimized . . . along with noise and vibration.

The ROCKMASTER pattern illustrated above was designed to keep blasted material from falling down the slope. The holes were carefully loaded and adequately stemmed. As the blast was fired, it advanced in alternate delay periods from ROCKMASTER No. 1 to No. 6. The row toward the slope fired first and gave relief for subsequent rows. The general heave inclined toward this relief—up the slope.

When you have shooting problems like this, ROCKMASTER can help you too. Send for your copy of the ROCKMASTER Blasting System Booklet.

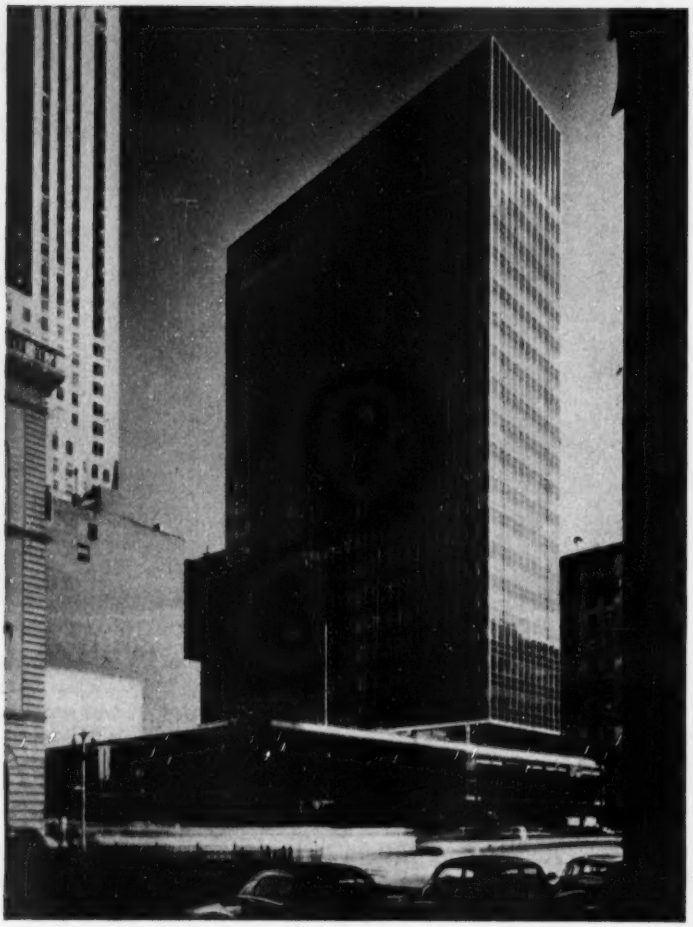
ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY, WILMINGTON 99, DELAWARE

Offices in principal cities

How to provide for 131,000 ELECTRICAL OUTLETS ...now or in the future



SPECTACULAR LEVER HOUSE, on Park Avenue, New York City, will always remain electrically modern because of its General Electric Q-Floor wiring system. However offices may be rearranged, it will always be easy to provide neat, unobtrusive electrical outlets for office machines, telephones, and inter-office communications systems.

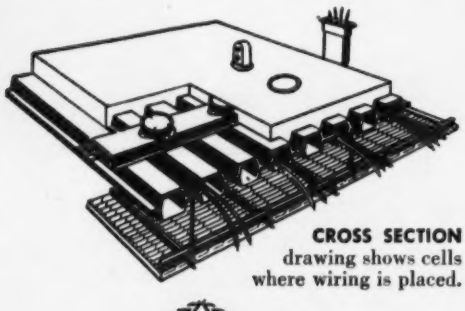
SKIDMORE, OWINGS & MERRILL, *Architects.* **GEORGE A. FULLER CO.,** *General Contractors.* **SMITH and SILVERMAN,** *Electrical Engineers.* **FISCHBACH and MOORE,** *Electrical Contractors.*

Lever House uses General Electric's Q-Floor wiring system

Lever House, like many other modern buildings, is constructed with Q-Floor, a cellular steel flooring that saves materials, weight, and construction time. General Electric provides connections that make the Q-Floor cells available for wiring — so that each Q-Floor cell becomes an underfloor raceway. An electrical outlet, therefore, can readily be located in any one of the 131,000 square feet of floor space in Lever House.

With General Electric Q-Floor wiring, wire moldings, wire tacked along baseboards, or wire around doorways can be eliminated. Outlets for power, inter-office communication sets, or telephones can be added or relocated within six inches of any spot on the floor—at any time—in quick time.

For more information about Q-Floor wiring, call your G-E Construction Materials district office. Or, write to Section C23-532, Construction Materials Division, General Electric Company, Bridgeport 2, Conn.



CROSS SECTION drawing shows cells where wiring is placed.

You can put your confidence in—

1878 75 1953 YEARS OF ELECTRICAL PROGRESS

GENERAL ELECTRIC

(Continued from page 110)

Run; 5 metal plate pipe arches; bit. surf. on crushed aggregate base variable to 18 ft. wide T. R. 126, Fulton Co.;

Emrich Constr. Co., Inc., R.D. 1, Manchester, Pa., LB $146,801, crushed aggregate base with bit. surf. 18 ft. wide, 2.33 mi., grading, drainage, incl. wid'n. and overlay existing pavement with crushed aggregate base and bit. surf. 18 ft. wide, Leg. Rt. 41044, Lycoming Co.;

M. & I. Corp., Wirsing and Cedar Sts., South Greensburg, Pa., LB $337,631, c.-conc. pavement and crushed aggregate base with bit. surf. 24 ft. wide, 1.62 mi. rein.-con. bridge over Monastery Run, Leg. Rt. 64151. Westmoreland Co. Bids May 1. CD 4/15.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore,

George & Lynch, Inc., Delaware Trust Bldg., Wilmington, Del. CA $688,886, grading, drainage surf. 2.624 mi. U. S. Rte. 50, WI 119-7-115, Wicomico Co. CD 12, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore,

James Julian, 425 S. Dupont St., Elsmere, Del. CA $665,700, grading drainage, surf. 2.577 mi. U. S. Rte. 13, WI 133-8-115, Wicomico Co. CD 4/14, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Rosewood Gardens Apartments, c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. $960,000. 6 story APARTMENT for 120 families, 21 Ave. between 28 and 29 Sts., ASTORIA, N. Y.

Lenox Estates Homes, c/o Alwin Cassens, archt. 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $600,000. 50 HOUSES on tract, Newbridge and Lenox Aves., EAST MEADOW, N. Y.

Meryl Homes, c/o Stanley H. Klein, archt., 89-31, 161 St., Jamaica, N. Y. Owner Builds. $570,000. 36 HOUSES, N. Jerusalem Rd., east of Belmore Ave., EAST MEADOW, N. Y.

▲ **Green Knolls Homes**, c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, N. Y. Owner Builds. $1,000,000. 102 HOUSES on tract on Old Country Rd., east of South Oyster Bay Rd., HICKSVILLE, N. Y.

Southcrest Homes, c/o Alwin Cassens, archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $900,000. 75 HOUSES, on tract at Jerusalem Ave. and Lakeshore Dr., MASSAPEQUA PARK, N. Y.

Jo-Bill Building Corp., c/o Henry W. Johanson, archt., 2 Main St., Roslyn, N. Y. Owner Builds. $800,000. 60 HOUSES, on tract at Wynsum Ave. and Hampton Way, south of Merrick Rd., MERRICK, N. Y.

Investors Funding Corp. & Lanning Aranoff Assoc., c/o Tito DiVincenzo, archt., 2 Columbus Circle, New York 19, N. Y. Owner Builds. $750,000. 96-family APARTMENT, Georgia Ave. and Vincent Rd., MT. VERNON, N. Y.

▲ **Berne Constr. Co.**, 581 Wilmot Rd., New Rochelle, N. Y. Owner Builds. $4,000,000. Garden type APARTMENT colony for 500-families on 12½ acre site, Hudson Park Rd. and Davenport Ave., NEW ROCHELLE, N. Y. Maxon-Sells & Ficke, 724 Fifth Ave., New York 19, N. Y., archts.

Ranes Constr. Corp., 151 Montague St., Brooklyn 1, N. Y. CA $489,756, general constr. Sanitation GARAGE, Dist. No. 4-S-126 for the Dpt. of Sanitation, Delancey and Columbia Sts., Manhattan Boro, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Mar. 18. CD 2/26.

▲ **Carnoy-Wolter Constr. Corp.**, 55 Tarrytown Rd., White Plains, N. Y. Owner Builds. $1,800,000. 146 HOUSES, 40-acre tract, north of Old Tarrytown Rd., WHITE PLAINS, N. Y.

▲ **Punia & Marx and I. Orlian & Sons**, 16 Court St. Brooklyn, N. Y., CA, $1,500,000 159 HOUSES on tract on Route 33, 5 mi. from Trenton, HAMILTON TWP., N. J. Hamilton Square Park Homes, c/o contractor.

Joseph O. Byrnes, Somers Point, N. J., Separate Contracts. $800,000. RESIDENTIAL DEVELOPMENT, Longport Blvd., LONGPORT, N. J.

▲ **Meadowbrook Homes, Inc.**, 221 S. Broad St., Phila., Pa., Separate Contracts. $1,000,000, RESIDENTIAL DEVELOPMENT, Irving Ave., PENNSAUKEN, N. J. Edward A. L. Cox, 709 Market St., Camden, N. J., archt.

▲ **Alexander Alessi**, Wayne, Pa., Separate Contracts. $1,000,000, RESIDENTIAL DEVELOPMENT, Gulph Rd., GULPH MILLS, PA.

Baton Constr. Corp., 1717 Sansom St., Phila., Pa., CA, $500,000, 1 story 120 x 350 ft., MACHINE SHOP, Red Lion Plant, PHILA., PA. Budd Co., 22 St. and Huntington Park Ave., Phila., Pa. Bids Apr. 15. CD 4/9.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa., CA, $1,700,000, DEPARTMENT STORE, Castor Ave. and Cottman St., PHILA., PA. Albert M. Greenfield & Co., 1325 Walnut St., Phila., Pa. Thalheimer & Weitz, 1315 Walnut St., Phila., Pa., archts.

▲ **Madway Engineering & Constr. Co.**, 107 N. Aberdeen Ave., Wayne, Pa. Separate Contracts, $9,000,000. RESIDENTIAL DEVELOPMENT, Chester Rd., SWARTHMORE, PA. Jack Swerman, 405 Market St., Chester, Pa., archt.

▲† **Bonwit Constr. Co., Inc.**, 100 Gold St., New York, N. Y. CA $1,143,500. LABORATORY and ENGINEERING BLDG. for development and proof service,

(Continued on page 115)

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CHEAPER
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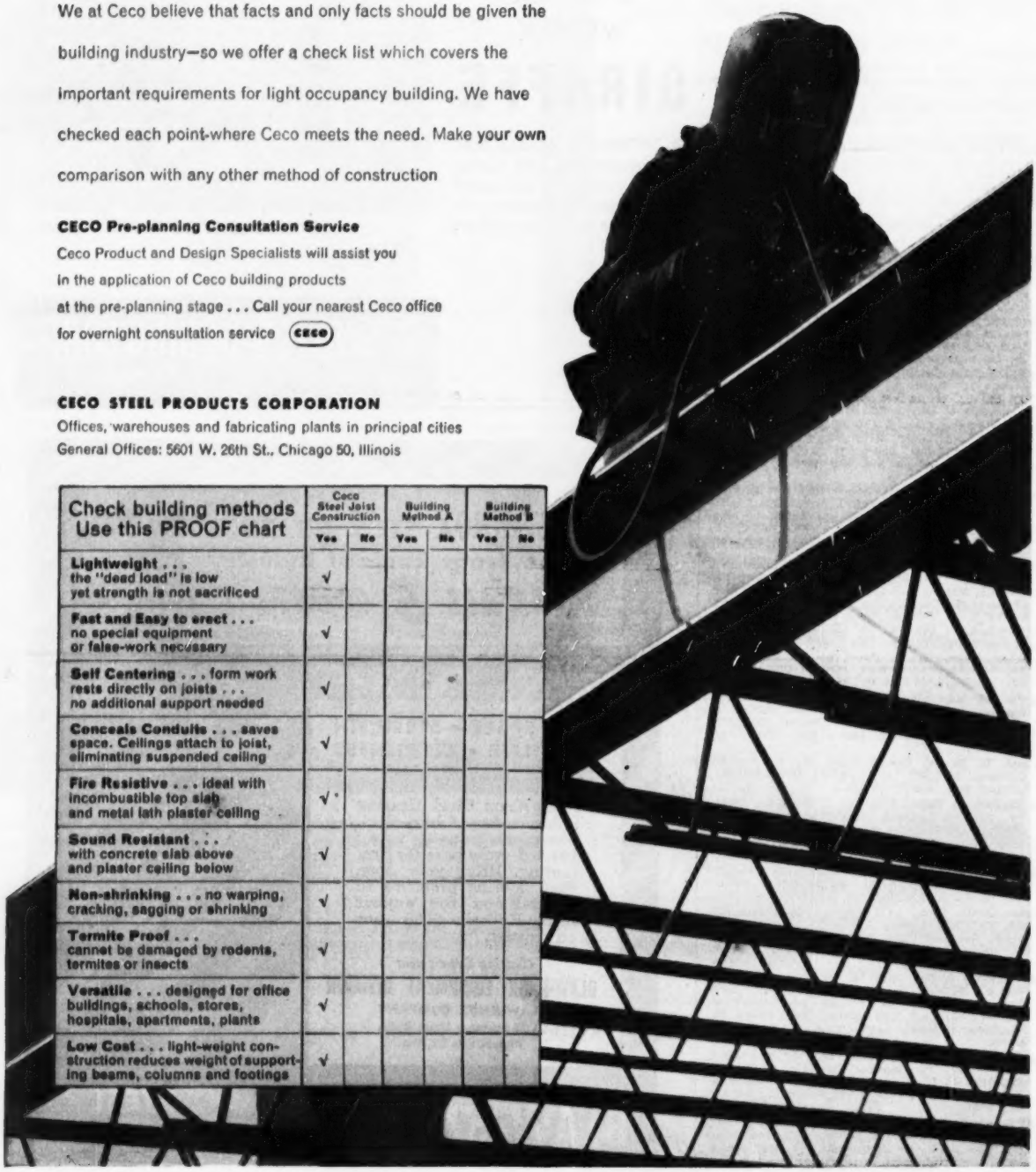
	Yes	No	Yes	No	Yes	No
Lightweight . . . the "dead load" is low yet strength is not sacrificed	√					
Fast and Easy to erect . . . no special equipment or false-work necessary	√					
Self Centering . . . form work rests directly on joists . . . no additional support needed	√					
Conceals Conduits . . . saves space. Ceilings attach to joist, eliminating suspended ceiling	√					
Fire Resistive . . . ideal with incombustible top slab and metal lath plaster ceiling	√					
Sound Resistant . . . with concrete slab above and plaster ceiling below	√					
Non-shrinking . . . no warping, cracking, sagging or shrinking	√					
Termite Proof . . . cannot be damaged by rodents, termites or insects	√					
Versatile . . . designed for office buildings, schools, stores, hospitals, apartments, plants	√					
Low Cost . . . light-weight construction reduces weight of supporting beams, columns and footings	√					



(Continued from page 113)

Eng. 18-020-53-44, ABERDEEN PROVING GROUND, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. CD 3/27, under LB.

▲ **Gardens Constr. Co., Inc.,** 2406 Greenmount Ave., Baltimore, Md. LB, **$3,983,000,** est. $2,500,000. brick, concrete, steel Carver Vocational High School, Bentalu and Prestman Sts., BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Apr. 29. CD 4/15.

▲ **Alvin Aubinoe, Inc.,** 1515 19 St. N. W., Wash., D. C. CA Est. **$10,000,000.** PARKING-SHOPPING CENTER, Wildwood Manor, Old Georgetown Rd. and Grosvnor Lane, BETHESDA, MD. CD 3/27.

▲† **John Tester & Sons, Inc.,** 1620 Second St., S.W., Wash., D. C. LB **$2,427,227.** N.S.A. Constr. Proj. BARRACKS, Eng-18-020-53-61, FORT GEORGE G. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. Bids Apr. 30. CD 4/14.

P. F. DuLaney, 216 C St. N. W., Wash., D. C. LB **$580,967,** est. $500,000. Glen Ridge Junior High SCHOOL, Landover Hills, UPPER MALRBORO, MD. Prince Georges Co., Bd. Educ., Upper Marlboro, Md. Bids Apr. 29. CD 4/17.

▲ **George A. Fuller Co.,** Munsey Bldg., Wash., D. C., CA, **$1,000,000.** CHURCH SANCTUARY AND EDUCATIONAL BLDG., WASH., D. C. First Baptist Church, 16 and O Sts. N. W., Wash., D. C. W. H. Thomas, Thomas T. Waggoner, Penfield Bldg., Phila., Pa., archts. CD 3/22/46.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Tenn., Nashville—B.A. 6/16—E. B. Smith, city purch. agt., Courthouse-City Hall Bldg., Proj. No. 53-SD-1, East Nashville Interceptor and River Crossing Sewers (1) interceptor sewers tributary to Jefferson Street Bridge river crossing (2) interceptor sewers tributary to South Fifth Street river crossing (3) six rein.-con. regulator chambers (4) river crossing sewers and structures for both the Jefferson Street Bridge and South Fifth Street river crossings. Plans deposit $25. Rice, Harwood & Clark, Bertrand Goldberg Assoc., 905 American Trust Bldg., Nashville, archts.-engrs.; adv. ENR 5/14. CD 10/7.

BIDS ASKED—BUILDINGS

▲ **Tenn., Oak Ridge**—HOUSING—B.A. 5/25—Management Services, Inc. (Sponsor), Oak Ridge, construct, manage, finance, 500-unit Housing units. $4,000,000. CD 8/26.

La., New Orleans—HALL OF PHILOSOPHY—B.A. 5/28—Roman Catholic Church of Diocese of New Orleans, c/o Diboll-Kessels & Assoc., archts., 637 Pere Antoine Court, Hall of Philosophy for Notre Dame Seminary Group, $800,000. CD 12/19.

SOON LETS CONTRACT—BUILDINGS

▲ **Fla., Coral Gables**—ADMINISTRATION—University of Miami, 1200 Campo Sano Ave., soon lets contract, administration bldg. $1,000,000. Watson & Deutschman, Chamber of Commerce Bldg., Miami, archts. CD 1/18/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Chesapeake & Potomac Telephone Co. of Virginia, 120 W. Bute St., Norfolk, Va. Owner Builds. **$83,000,** telephone lines, Fairlington area, ALEXANDRIA, VA.

▲† **Williams Paving Co., Inc.,** 1269 E. Princess Anne Rd. Norfolk, Va., CA, **$1,369,005,** runways extens., and addnl. imprvs., NAOTS-NAD, NOY 74669, Spec. 36524, CHINCOTEAGUE, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Feb. 24. CD 2/27, under LB.

Chesapeake & Potomac Telephone Co. of Virginia, 120 W. Bute St., Norfolk, Va. Owner Builds. **$161,000,** addnl. telephone lines, NORFOLK, VA.

WEST VIRGINIA—State Road Comn., Charleston,

Bennie Snyder, Frankiin, W. Va., LB, **$169,779,** macad. base, b. conc. surf. 1.139 mi. U.S. 60 E. Rainelle-McRoss Bridge Approaches, F77 Contract 2, Greenbrier Co.;

Atlas Engineering Co., Elkins, W. Va., LB, **$87,030,** macad. base, b. conc. 0.524 mi. U.S. 219 Gilman Bridge approaches, S285 (3), Randolph Co. Bids Apr. 28. CD 4/22.

▲ **WEST VIRGINIA**—West Virginia Turnpike Comn., Charleston,

Clark Farrell Co. and H. N. Rodgers & Sons, 62 S. Front St., Memphis, Tenn., CA, **$2,070,133,** Contract 24B, grading, drainage 4½ mi. West Vjrginia Turnpike, incl. substructures for bridges between Station 2288 near mile 41, Raleigh Co. and Pax, near Mile 46, Fayette Co.;

H. W. Holt & Son, 998 W. Mound St., Columbus, O. CA, **$2,395,075,** Contract 24C, grading, drainage 4½ mi. West Virginia Turnpike, incl. substructures for bridges, between Pax, Mile 46 and Mossey beyond Mile 50, Fayette Co. Bids Apr. 28, awarded Apr. 30. CD 5/1, under LB.

▲ **WEST VIRGINIA**—West Virginia Turnpike Comn., Charleston,

S. J. Groves & Sons, Wesley Temple Bldg., Minneapolis, Minn., CA, **$5,864,541,** Contract 25, grading, drainage approx. 6.3 mi. West Virginia Turnpike, incl. substructures for 9 bridges, relocation of approx. 1.7 ml. State Hy. between town of Mossey, mile 51.6 and town of Mahan, mile 57.9. Fayette Co. Bids Apr. 21, awarded Apr. 30. CD 5/1, under LB.

(Continued on page 118)

CLUTCHES by ROCKFORD

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For over 20 years, ROCKFORD CLUTCHES have contributed to the efficiency of ELGIN Sweepers. The long life and low maintenance cost of these heavy-duty clutches have helped ELGIN Sweepers "sweep more miles of pavement, more often — at less cost." Let ROCKFORD engineers help plan efficient power transmission control for your product.

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Contractor completes job 45 days ahead of estimate as TD-24 fleet moves a million yards

Ryan Construction Company, Evansville, Indiana, took on a big job when they contracted to move a million cubic yards of dirt and place 35,000 tons of riprap in site preparation for a new steam generator plant on the Ohio River.

From the first day on the contract, Ryan's five TD-24's made the dirt fly. Their assignment: to cut down two hills and dump the excavated material in old creek bed to make a new power plant site.

They averaged 4 minutes and 40 seconds on the 2,000 foot round trip between cut and fill. Self-loading heaped

SWIFT SELF-LOADING A pair of hustling TD-24's charge ahead, self-loading 18 yard scrapers as they go. Five of these fast Internationals helped keep the job ahead of schedule.

TD 24

Rolls for Ryan

scrapers, the Big Red fleet moved tremendous yardages every day—kept doing it even in rain and mud, the Ryan people report.

TD-24's are the fastest and most powerful crawlers on the market. That's why "Big Red" performance is paying off not only for Ryan but for contractors across the country who need big crawler power to get tough jobs done on time.

And you can't beat the service provided by your nearby International Industrial Distributor. His trained servicemen, complete stocks of parts and up-to-date shop facilities are available to you anywhere, anytime to keep your equipment in production.

He and the famous line of IH crawlers he sells are willing and able to help you put your contract on a paying basis.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.

POWER STEERING WITH FULL LOADS mean faster cycles, higher daily production. Because "Big Red" steers with full power on both tracks, it can maneuver with the same heavy loads that can be pulled on the straightaway.

WATCHING BIG RED ROLL Ryan Construction men keep close tabs on the performance of their five TD-24's. Cycles are clocked for half an hour every morning and afternoon. Left to right: Guy Tilley, Job Superintendent, Tom Vickers, Job Foreman, and Virgil Scales, Superintendent.

INTERNATIONAL HARVESTER

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Scoot-Crete's heavy-duty, truck transmission stands up under the worst operating conditions; delivers maximum horsepower from the Wisconsin AEN air-cooled engine to the heavy-duty, high-traction 7:50x10, 8-ply U. S. Royal tires. Scoot-Crete scoots 3,000 lb. loads up 25% grades, in plants and at construction sites, has caster steering — turns in its own 90" over-all length. Dump box body interchangeable with flat rack in a few minutes. Speeds, 1 to 15 mph. 14, 16, 20 cu. ft. capacities. Today, write for specifications and performance facts.

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Indoor and Outdoor Models

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761 THIRD AVENUE
BROOKLYN 32, N. Y.

(Continued from page 115)

WEST VIRGINIA—State Road Comn., Charleston,

Brown & Wright, Princeton, W. Va., LB, **$222,341,** macad.-b. conc. 2.637 mi. Edison & Brush Fork Road, Sec 37 S-632 (2), Mercer Co.;

A. A. & D. M. Bostic, Rupert, W. Va., LB, **$62,818,** asph. surf. 11.1 mi. W. Va. 15 Pt. Mountain-Randolph Co. Line Rd., State Proj. 3021-B, Webster Co. Bids Apr. 28. CD 4/22.

† **H. G. Bryant Electric Co.,** 3018 Market St., Wilmington, N. C., LB **$64,880,** electric distr. sys. imprvs., NOY 77092, Spec. 36550, CAMP LEJEUNE, N. C. P. Wks. Office, Bldg. 1005, Marine Barracks, Camp Lejeune, N. C. Bids Apr. 27.

▲ **V. B. Higgins Co.,** Greensboro, N. C., CA, **$1,283,370** Sugar Creek Sewage Treatment Plant addn., CHARLOTTE, N. C. City, City Hall, Charlotte, N. C. Bids Apr. 2, CD 4/10, under LB.

C. L. Rhodes, Inc., Masonic Bldg., Decatur, Ga., LB, **$104,800** bridge over Peachtree Creek, on Johnson Rd., ATLANTA, GA. City, City Hall, Atlanta, Ga. Bids Apr. 28. CD 4/17.

▲ † **Faulk & Coleman Constr. Co.,** Woodville Hy., Tallahassee, Fla., LB, **$1,172,393,** paving runways, taxiways, apron, hardstands and compass swing base Auxiliary Field No. 9, Inv. 53-50, EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids Apr. 30. CD 2/18.

▲ † **T. C. Bateson Co.,** Irwin-Keasler Bldg., Dallas, Tex., CA, **$2,561,140,** maintenance hangars, Pinecastle Air Force Base, ORLANDO, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Dec. 30. CD 1/6, under LB.

† **Shaw & Estes,** P. O. Box 2399, Dallas, Tex., CA, **$684,347** conversion of 12 jet engine test cell facilities, Brookley Air Force Base, MOBILE, ALA. Purch & Contg. Office, Brookley Air Force Base, Mobile, Ala. Bids Apr. 15. CD 4/21, under LB.

† **McCullough Dredging Co.,** Box 630, Birmingham, Ala. LB **$149,600.** dredging in Pearl River, MISSISSIPPI. U. S. Eng., P. O. Box 1169, 2301 Grant St., Mobile 7, Ala. Bids Apr. 28.

MISSISSIPPI—State Hy. Dpt., T. C. Robbins, dir., Jackson, rejected bids Apr. 28, incidental grading, base double bit. surf. tr. 6.416 mi. Miss. Hy. No. 4 between Ripley and Miss. Hy. No. 5, S 935-1 (2), Benton Co. est. **$85,000;** base, double bit. surf. tr. 8.036 mi. Miss. Hy. No. 4 between Ripley and Miss. Hy. No. 5, S 0935 (4) A, Tippah Co., **$95,000;** base, double bit. surf. tr. 7.196 mi. Miss. Hy. No. 4 between Bonneville and Ripley, S 0935 (3) A, Tippah and Prentiss Counties, etc. **$76,000;** base preparation double bit. surf. tr. 5.519 mi. F 044-1 (3), Union Co., **$60,000.** CD 4/16.

MISSISSIPPI—State Hy. Dpt., T. C. Robbins, dir., Jackson,

Lee Constr. Co., Hattiesburg, Miss. CA **$393,892,** est. $466,600. 0.508 mi. grading, culverts, two bridges across St. Catherine Creek on US. Hy. No. 61 between Natchez and Washington, Adams Co.;

Cobb Bros. Constr. Co., Citizens Bank Bldg., Meridian, Miss. CA **$179,152,** est. $180,000. base, culverts, double bit. surf. tr. alternate types of paving 2.351 mi. US Hy. No. 80 between Newton and Hickory, FI 004-2 (8) and FGI 004-2 (10), Newton Co.; CA **$159,836,** est. $160,000, base, culverts, double bit. surf. tr. sand asph. paving 1.81 mi. on US Hy. 80 between Meehan Jct. and Meridian FI 004-2 (9) and FGI 004-2 (10), Lauderdale Co.;

J. B. Russell, Tchula, Miss. CA **$87,970,** est. $96,000, base, double bit. surf. tr. 5.393 mi. Miss. Hy. No. 12 between Leroy Percy State Park and Hollandale, S 0627 (1) A, Washington Co. Grand total $820,850. Bids Apr. 28. CD 4/16.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

T. L. James & Co., P. O. Box 531, Ruston, La. CA **$528,028.** patch, widen 12.59 mi. Adeline-Centerville Hy., State Rte. 2, S.P. 4-06-06 and 4-07-05, St. Mary Parish. CD 4/22, under LB.

▲ **LOUISIANA**—State Hy Dpt., Highway Office Bldg., Baton Rouge,

Louisiana Paving Co., Drawer 8, Kenner, La. LB **$912,885.** c. conc. 6.876 mi. Gramercy-Garyville Hy., State Rte. 1500, S.P. 7-05-06 and 7-04-08, F.A. Proj. FI 172 (9), St. James and St. John the Baptist Parishes;

Reynolds & Williams Contractors, Slattery Bldg., Shreveport, La. LB **$74,599.** bit. mixture for hot application binder course 8 mi. Ruston-Cedarton Hy., State Rte. 44, S.P. 69-01-08, Lincoln Parish;

W. R. Aldrich & Co., 2493 Baywood Ave., Baton Rouge, La. LB **$574,110.** 14,374 cu. yd. base course grav. (Grade A modified) or alternate 15,400 cu. yd. base course iron ore (Grade A modified) 3.64 mi. Longstreet-Grand Cane Hy., State Rte. 137, S. P. 298-02-05, Purchase Requisition No. 41992A, De-Soto Parish. Bids Apr. 29. CD 4/22.

Bartley & Binnings, 433 Gravier St., New Orleans, La. LB **$568,649.** water treatment plant, LOCKPORT, LA. Lafourche Parish Water Dist. 1, Lockport, La. Bids Apr. 30. CD 4/17.

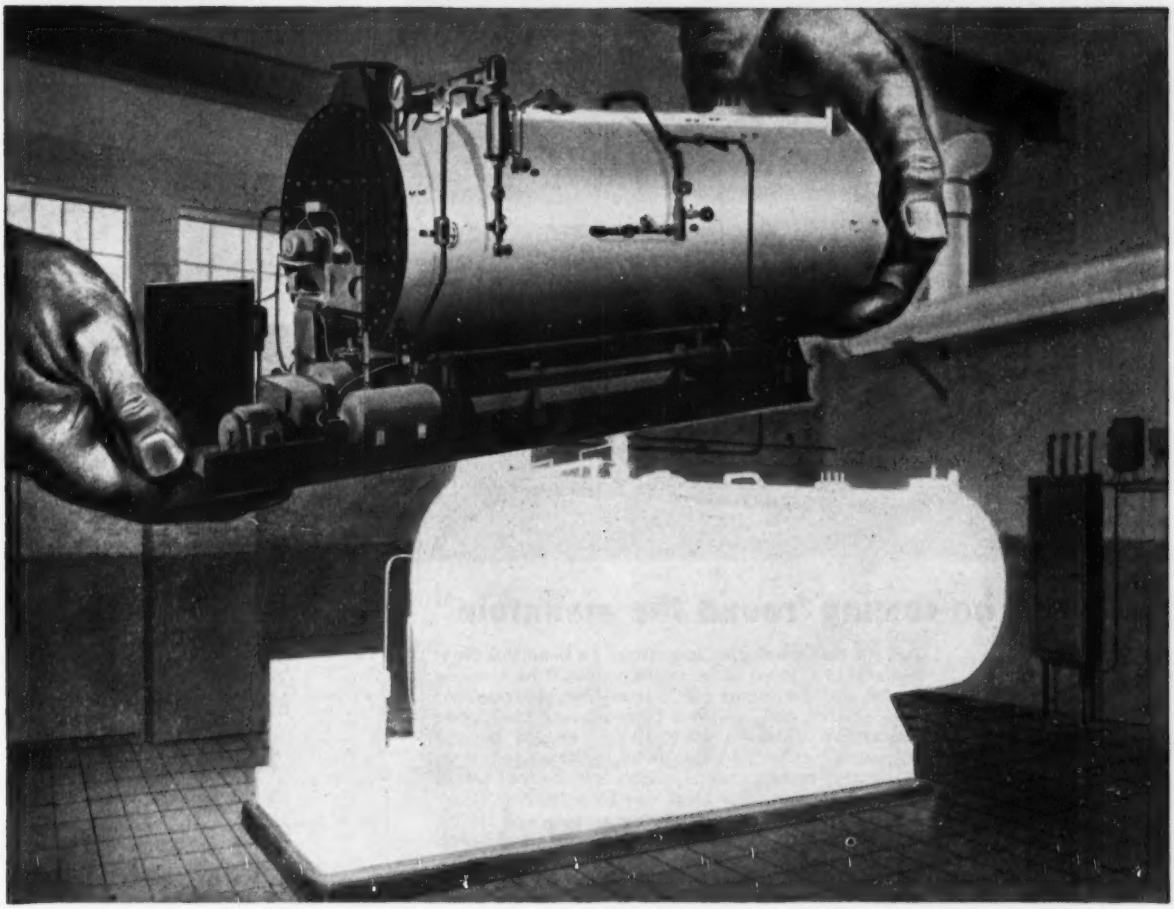
▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Foster & Creighton, American National Bank Bldg., Nashville, Tenn. CA **$555,430.** grade, drain, overhead bridge and c. conc. 1.978 mi. Owensboro Henderson Rd., F 106 (7), U 106 (5), SP 30-537, Daviess Co.;

Codell Constr. Co., Winchester, Ky. CA **$666,745.** grade, surf. with straight wire cable and 12 in. structural steel piling 2.617 mi. Preston Street Rd. and Inner Belt Line, U 478 (3). SP 56-138 and U 528 (6), SP 56-898, Jefferson Co. CD 5/1, under LB.

(Continued on page 120)

Here's why you get more...when you buy a Cleaver-Brooks Self-Contained Boiler



...only Cleaver-Brooks can offer you the experience gained from more than 20 years of pioneering . . . and more than 12,000 individual "packaged" boiler installations

CLEAVER-BROOKS pioneering has been largely responsible for simplifying boiler buying . . . lowering costs of installation . . . delivering 80% guaranteed steam efficiency from every fuel dollar.

Boilers can be shipped as completely assembled and tested self-contained units, with auxiliaries as required. Installation involves minimum of time, construction and space. Usually connections only to steam, fuel, water lines and electrical service are needed. No special foundations are required. A short vent takes care of exhaust gases. Frequently, boilers are ready for use in a matter of *hours*, depending on availability of service lines.

Cleaver-Brooks, originators of the self-contained boiler, offers wider experience that counts in another important way. Qualified engineers help you plan steam plants tailored *exactly* for your needs. Carefully analyzed are loads, space and equipment arrangement. This not only helps you solve present steam needs, but adds flexibility for future expansion as well.

This application engineering, plus basically sound design and construction is your assurance of a full return from your boiler investment. When you specify a self-contained boiler — make sure it's a Cleaver-Brooks.

Send for Catalog AD-100 for full details on Cleaver-Brooks boilers. Available for oil, gas and combination oil/gas firing. Sizes 15 to 500 hp, 15 to 250 psi — for heating and processing.

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ORIGINATORS OF
THE SELF-CONTAINED BOILER
Steam Boilers • Oil and Bitumin Tank
Car Heaters • Distillation Equipment
Oil and Gas Fired Conversion Burners

(Continued from page 118)

BUILDINGS

LOW BIDS AND CONTRACTS

T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, N. C., CA, $628,650, HOSPITAL addn., KINSTON, N. C. Lenoir Co., Kinston, N. C. Bids Mar. 20. CD 3/26, under LB.

Dolphin Homes, 1015 Pegg Rd., East Point, Ga., Owner Builds, $550,000, 70 RESIDENCES ATLANTA, GA.

Griffin Constr. Co., 26 3 St. N. W., Atlanta, Ga., LB, $326,500, CHURCH addn., ATLANTA, GA. Beecher Hills Baptist Church, 2430 Beecher Rd. N. W., Atlanta, Ga. Bids Apr. 28. CD 4/13.

Masters Home Builders, Inc., 3041 Bransford Rd., Augusta, Ga. Owner Builds. $750,000, 30 RESIDENCES, AUGUSTA, GA.

Mathis Constr. Co., Lumpkin St., Athens, Ga., LB, $509,980 HIGH SCHOOL, GIBSON, GA. Glascock Co., Gibson, Ga. Bids Apr. 28. CD 4/31.

James Tindall, Auburndale, Fla. Owner Builds, $600,000 100 RESIDENCES, AUBURNDALE, FLA.

C. F. Wheeler, 810 N. W. 72 St., Miami, Fla., CA, $570,900, HOSPITAL addn., FORT LAUDERDALE, FLA. Broward General Hospital, 1612 S. E. 1 Ave., Fort Lauderdale, Fla. Bids Apr. 22. CD 4/28, under LB.

▲ **Cesery & Liddell**, 239 W. Adams St., Jacksonville, Fla. Owner Builds. $3,000,000, 330 RESIDENCES, JACKSONVILLE, FLA.

Clutter Constr. Co., 8340 N.E. 2 Ave., Miami, Fla., LB, $825,000, MOTOR COURT, MIAMI, FLA. Ben B. Gaines, 201 20 St., Miami Beach, Fla. Bids Apr. 30. CD 4/28.

Stobs Bros. Constr. Co., 7010 N. E. 4 Court, Miami, Fla., Owner Builds, $100,000 WAREHOUSE, MIAMI, FLA.

Stewart-Page Co. of Florida, 6701 S. W. 26 Terrace Miami, Fla., CA, $340,000, 68 RESIDENCES, MIAMI, FLA. Modern Age Homes, Inc., c/o contractor.

Richardson Constr. Co., 429 S. 24 St., Birmingham, Ala., LB, $398,340 HOTEL addn., ANNISTON, ALA. Stanton B. Ingram, Anniston, Ala. Bids Apr. 28. CD 4/21.

Richardson Contr. Co., 429 S. 24 St., Birmingham, Ala., LB, $712,400, out-patients CLINIC, FAIRFIELD, ALA. Lloyd Nolan Hospital, Fairfield, Ala. Bids Apr. 28. CD 4/15.

T. H. Davis, 2508 Osage St., Mobile, Ala., CA, $310,000 CHURCH addn., MOBILE, ALA. Central Presbyterian Church, c/o Richard A. Vender Sys, 61 Royal St., Mobile, Ala. Bids Apr. 29. CD 4/28.

J. E. Pyle, P. O. Box 1679, Little Rock, Ark. LB $541,049. HOSPITAL, PICAYUNE, MISS. Lucius O. Crosby Memorial Hospital, Picayune, Miss. Bids Apr. 28. CD 4/13.

East and West Roselyn Park Co., 238 Dryades St., New Orleans, La. Owner Builds. $500,000. 29 RESIDENCES, NEW ORLEANS, LA.

▲† **Tennessee and Alabama**—Tennessee Valley Auth., New Sprangle Bldg., Knoxville, Tenn., awarded contracts for Shawnee Steam Plant, Tenn., Colbert Steam Plant, Ala., John Sevier Steam Plant, Tenn., Douglas Dam, etc. Total $3,219,674.

SHAWNEE STEAM PLANT, TENN.

Federal Cement Tile Co., 608 S. Dearborn St., Chicago, Ill., CA $26,905, furnishing, erecting addnl. concrete slabs;

H. H. Robertson Co., Farmers Bank Bldg., Pittsburgh, Pa., CA $373,714, metal siding panels and appurtenant items;

Lehigh Structural Steel Co., foot of Gordon St., Allentown, Pa., CA $98,220 structural steel for switching and transformer structures;

Roden Electrical Supply Co., 808 Central St., N. E., Knoxville, Tenn., CA $68,433, insulated conductor;

American Bridge Div., U. S. Steel Corp., 525 Wm. Penn Pl., Pittsburgh, Pa., CA $174,064, steel towers;

Phelps-Dodge Copper Products Corp., foot of Point St., Yonkers, N. Y., CA $187,398, insulated conductor;

General Electric Co., 40 Federal St., West Lynn, Mass., CA $135,934, instrument transformers;

COLBERT STEAM PLANT, ALA.

Lehigh Structural Steel Co., foot of Gordon St., Allentown, Pa., CA $117,460, switching and transformer yard structures;

General Electric Co., 40 Federal St., West Lynn, Mass., CA $91,014, instrument tarnsformers;

Babcock & Wilcox, Sterling Ave., Barberton, O., CA $526,036, steam generating units;

Converse Bridge & Steel Co., 2408 Vance Ave., Chattanooga, Tenn., CA $231,004, structural steel for coal handling facilities;

JOHN SEVIER STEAM PLANT, TENN.

Lambert Bros., Inc., Alcoa Hy. S. W., Knoxville, Tenn. CA. $80,500, rip rap stone;

Chase Brass & Copper Co., Inc., 236 Grand St., Waterbury, Conn., CA. $175,829, condenser tubing;

Moloney Electric Co., 5390 Bircher St., St. Louis, Mo. CA. $629,794, transformer and neutral reactors;

DOUGLAS DAM

Ready Mixed Concrete Co., Knoxville, Tenn., CA. $62,150, concrete;

MISCELLANEOUS

Power Equipment, Clintonville, Wis., CA. $122,643, trucks;

Southeastern Utilities Service Co., 3840 N. W. 37 Ct., Miami, Fla., CA $63,700, erecting river crossing tower;

Allis Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., CA. $54,875, oil circuit breakers.

P. M. Osborne Building Corp., 3808 Ringgold Rd., Chattanooga, Tenn. Owner Builds. $312,000. 52 RESIDENCES, CHATTANOOGA, TENN.

(Continued on page 123)

"She'll be coming 'round the mountain"

And on this particular mountain, in beautiful New England (Vermont to be explicit), she'll be coming 'round the mountain on a safe, smooth, resilient road—mixed and laid by a Moto-Paver. The upper illustration shows a Moto-Paver, owned by the Lambert Construction Co. of White River Junction, laying 2½" of bituminous concrete to 22 foot width for the Vermont State Highway Department.

Moto-Paver does the complete mixing and laying job—in one continuous operation. It uses beach sand, gravel, crushed stone or slag aggregates, and tars, cutback asphalts, road oils, emulsions or other bituminous materials. Road speeds up to 25 mph make possible quick moves from job to job.

For specifications and complete information on the Moto-Paver or any other type of asphalt plant, see your local H & B distributor or write for Bulletin MP 49.

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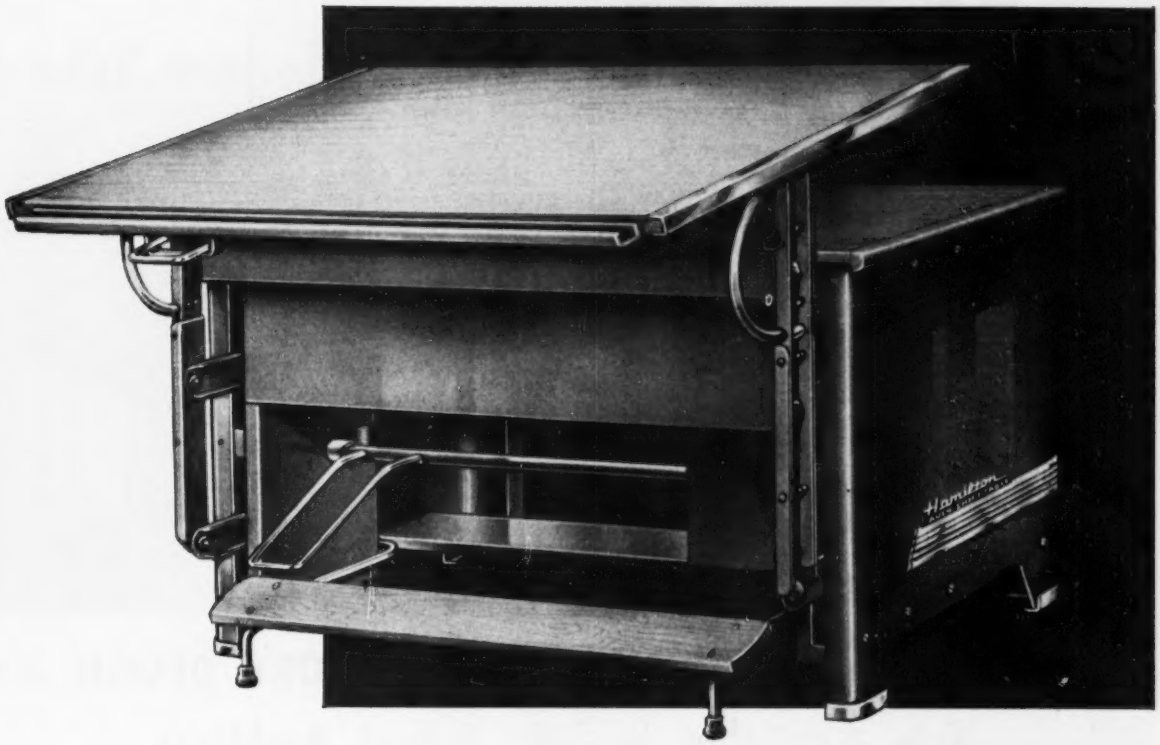


the new Auto-Shift™ Reg.
by Hamilton

America's most efficient, most *fatigue-free* drafting table has been completely redesigned—improved in many functional details, smartened in appearance and broadened to accommodate an entirely new range of drafting table needs. Yes, the new Auto-Shift line well deserves your interest—for it has been tailored precisely to your needs.

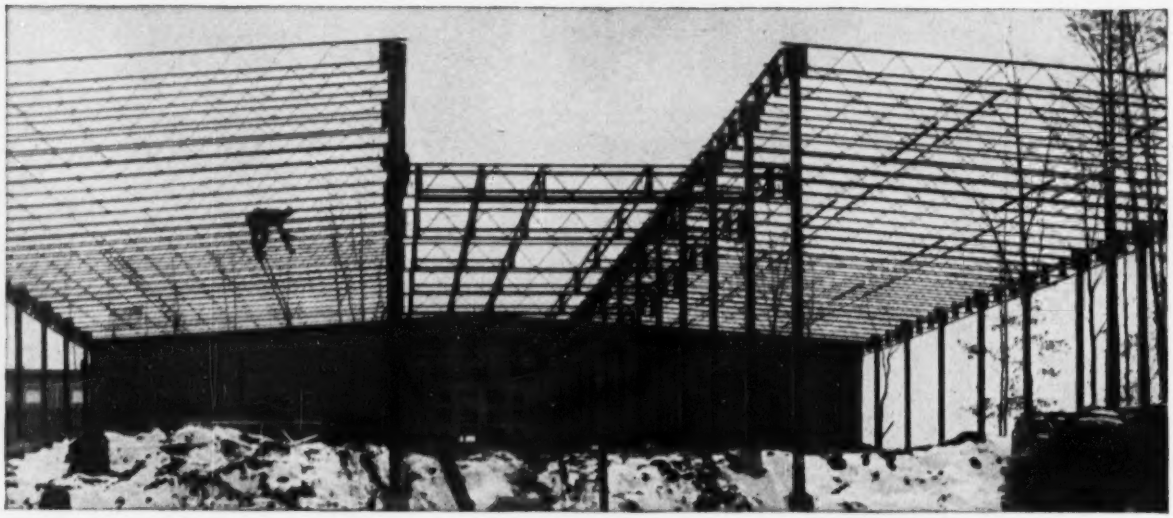
Here are a few highlights. The basic Auto-Shift table is now available in two base sizes, each with two board sizes. For row installations, two new front-end Auto-Shifts (board only) and two new rear-end units (reference desk only) are available. As always, the Auto-Shift features instant, effortless adjustment of board height and slope, and remarkably high floor space efficiency.

You owe it to yourself to find out more about this exceptionally fine drafting table, and Hamilton's new 8-page Auto-Shift brochure is the best possible way to do this. For your free copy, write today to—

Hamilton Manufacturing Company

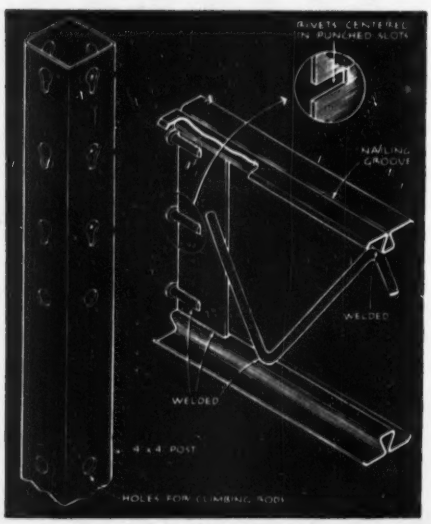
TWO RIVERS, WISCONSIN

HOW V-LOK Frames A Modern School



All the Advantages of SIMPLIFIED FACTORY DESIGN are Now Available for the School Architect

INTERLOCKING STRUCTURAL MEMBERS SPEED ERECTION



The trend to one-story buildings in school architecture prompts Macomber to present the advantages of industrial steel framing to school construction.

This is accomplished by applying the Macomber V-LOK system of industrial framing with all of its advantages in simplicity and erection speed.

You can visualize from the V-LOK steel school framing above the complete freedom for architectural finish, mechanical layouts and floor arrangement.

With this system, the building is under roof in a matter of days and all trades can work with a minimum of interference to rapid completion.

The above school is detailed in our V-LOK catalog. Send for it and utilize the economy of industrial framing in your next school jobs.

STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER • INCORPORATED

CANTON, OHIO

V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK

(Continued from page 120)

American Home Builders, 1178 S. Seminole Dr., Chattanooga, Tenn., Owner Builds. $300,000. 43 RESIDENCES, CHATTANOOGA, TENN.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

▲ **Mich., Royal Oak**—HOSPITAL—B.A. 5/19— D. L. Tate, 427 Fisher Bldg., Detroit, Zone 2, (selected list of bidders) 5 story, bsmnt., 215x240 ft. hospital, power plant, for Oakland Hospital, F. Fricher, chn. Bd., 1600 W. 8 Mile Rd., Ferndale, Zone 20, Detroit, Mich. $2,000,000. Ellerbe & Co., E. 505 First National Bank Bldg., Minneapolis, Minn., archts. CD 4/2/46.

O., Dayton—SCHOOL—B.A. 5/25—Bd. Educ., Van Buren Twp. School Dist., 4201 Ackerman Blvd., 1 story grade school. Plans deposit $50. Rial T. Parrish, 940-945 Knott Bldg., archt.-engr. CD 9/4.

Ind., Bluffton—SCHOOL—B.A. 5/27—Bd. School Trustees, High School Bldg., 2 story, brick high school addn., $325,000. Plans deposit $25. Everett I. Brown, Circle Tower, Indianapolis, Zone 4, archt. CD 3/26.

SOON LETS CONTRACT—BUILDINGS

▲ **Ind., Connersville**—PLANT, etc.—Rex Manufacturing Co., Div. Philco Corp., Connersville, soon lets contract, 40,000 sq. ft. refrigerator mfg. plant, power unit, and office, $4,000,000. Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Mich., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **S. E. Johnson Co.**, Salisbury Rd., Maumee, O., CA $62,698, 6 in. concrete replacement resurf. roadways Rossford Ordnance Depot, Serial No. Eng 46-022-53-40, TOLEDO, O. Purch. & Contg. Officer, Rossford Ordnance Depot, Toledo O., Bids Apr. 30. CD 4/13.

▲ **INDIANA**—State Hy. Comn., State House Annex, Indianapolis,

Olinger Constr. Co., Huntingburg, Ind., LB $415,670, est. $868,237, bit. on compacted aggregate paving, 4.345 mi. State Rd. 245, Newtonville, Spencer Co.;

J. C. O'Conner & Sons, Inc., 2104 Miner St., Fort Wayne, Ind., LB, $579,873, conc. base wid'n., b. conc. resurf. 1.35 mi. State Rd. 41 and 21, Hammond, Lake Co. rejected bids Apr. 30, c. conc., b. conc. resurf. 2.129 mi. State Rd. 109, S.E. of Anderson, Madison Co., LB $562,811. Bids Apr. 30. CD 4/15.

▲ **May Constr. Co.**, Hayden Rd. and **Barney Massa Constr. Co.** 4955 Avondale St., both Fort Wayne, Ind., LB, $597,880, interceptor sewers, Div. 1;

Santucci Constr. Co., Skokie, Ill., LB, $584,552 interceptor sewers, Div. 2, ELKHART, IND. Bd. P. Wks., City Hall, Elkhart, Ind. Bids Apr. 21 CD 3/30.

Columbia Constr. Co., 2108 Columbia Ave., Indianapolis, Ind., CA, $166,924, sanitary sewers University Heights, INDIANAPOLIS, IND. Bd. P. Wks., City Hall, Indianapolis, 4, Ind. W. R. Hunt, c/o owner, city engr. Awarded Apr. 28. CD 2/20.

▲ **Santucci Constr. Co.**, 5035 Church St., Skokie, Ill., LB $650,825, sanitary sewers in North Side; LB $645,351; relief sewers in North and North Central Area; LB $384,736; relief sewers in Northwest area;

E. A. Meyer Constr. Co., 1539 Morrow Ave., North Chicago, Ill., LB. $431,906, relief sewers downtown Southeast area; LB $408,860, sanitary sewers west Central area; LB $676,531 sanitary and sanitary relief sewers, Southwest area WAUKEGAN, ILL. City, City Hall, Waukegan, Ill. CD 4/29.

WISCONSIN—State Hy. Comn., Madison,

Bushman Constr. Co., 4638 J. C. Nichols Parkway, Kansas City, 2, Mo., CA, $505,566, c. conc. 10.886 mi. Platteville-Mineral Pt. Rd., U. S. Hy. 151, F 012-1 (35) and F 012-1 (34). Contract 1, Lafayette and Iowa Counties. Bids Apr. 28. CD 5/1, under LB.

MICHIGAN—State Hy. Dpt., Charles M. Ziegler, comr., Escanaba,,

Thornton Constr. Co., Hancock, Mich. LB $512,104. grading, 23 ft. stabilized aggregate 6.089 mi. US-53, Gogebic and Ontonagon Counties. Bids Apr. 28. CD 4/48.

MICHIGAN—State Hy. Dpt., Charles M. Ziegler, comr., 222 Townsend St., Lansing, Zone 13,

L. W. Lamb Co., Holland, Mich. CA $634,108, est. $600,000. rein.-con., steel bridge on relocation of M-60 over St. Joseph River, F B1 of 11-4-14 C1-R (F 427 1), Berrien Co. CD 4/28, under LB.

Roy Horning, Inc., Flint, Mich. CA. $59,804, est. $70,000. rein.-con., steel bridge over Swartz Creek and approaches, relocation of US-23, F B1 of 25-7-4 C1-R (F 219 12), Genessee Co. Bids Apr. 22. CD 4/8.

BUILDINGS

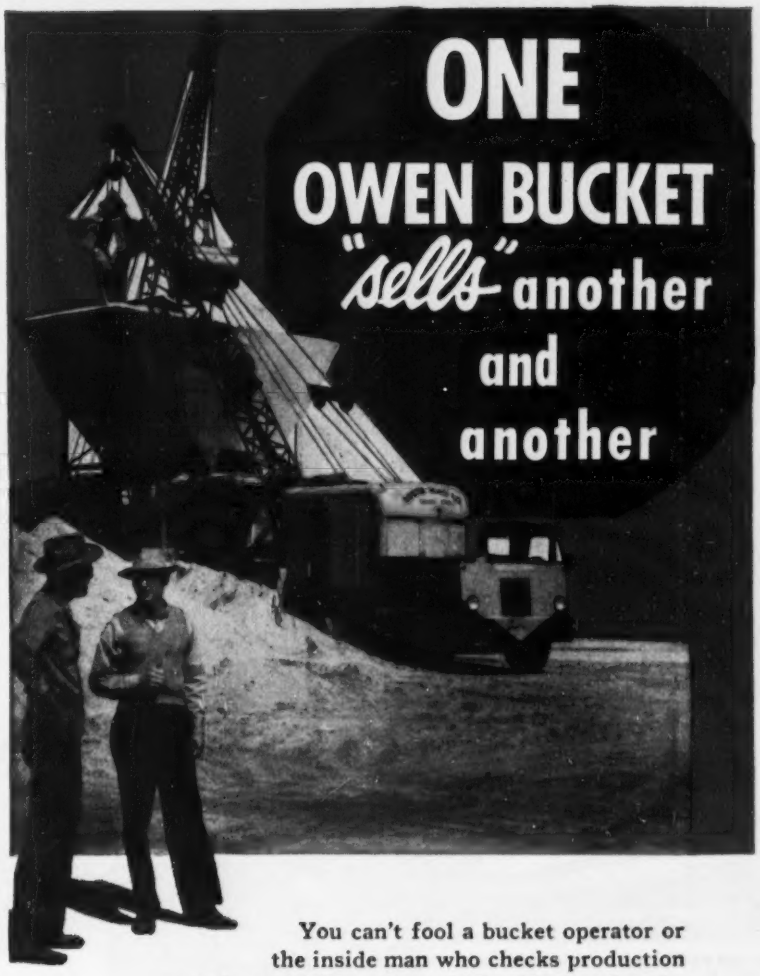
LOW BIDS AND CONTRACTS

▲ **Malaer & Carabin**, Cornell Rd., Sharonville, O. Owner Builds. $5,000,000. four hundred and fifty 1 and 1½ story, bsmnt., brick DWELLINGS, Sharon Hills off Carnell Rd., CINCINNATI, O. Wm. Byrnes, 1659 Sutton Ave., Cincinnati, O., archt. Nunlist & Frolicher, Trac Bldg., Cincinnati, O. engrs.

▲ **William H. Davis**, 1445 E. Broad St., Columbus, O. Owner Builds. $3,100,000. 222 single family and 26 two-family frame HOMES in Wm. H. Davis subdivision, north of Hy. Rd. in Northern Lights Shopping area, COLUMBUS, O.

The Austin Co., 16112 Euclid St., Cleveland, O. CA $500,000. Design and construct four-level, rein.-con. 500-car parking GARAGE, entrances on first and second

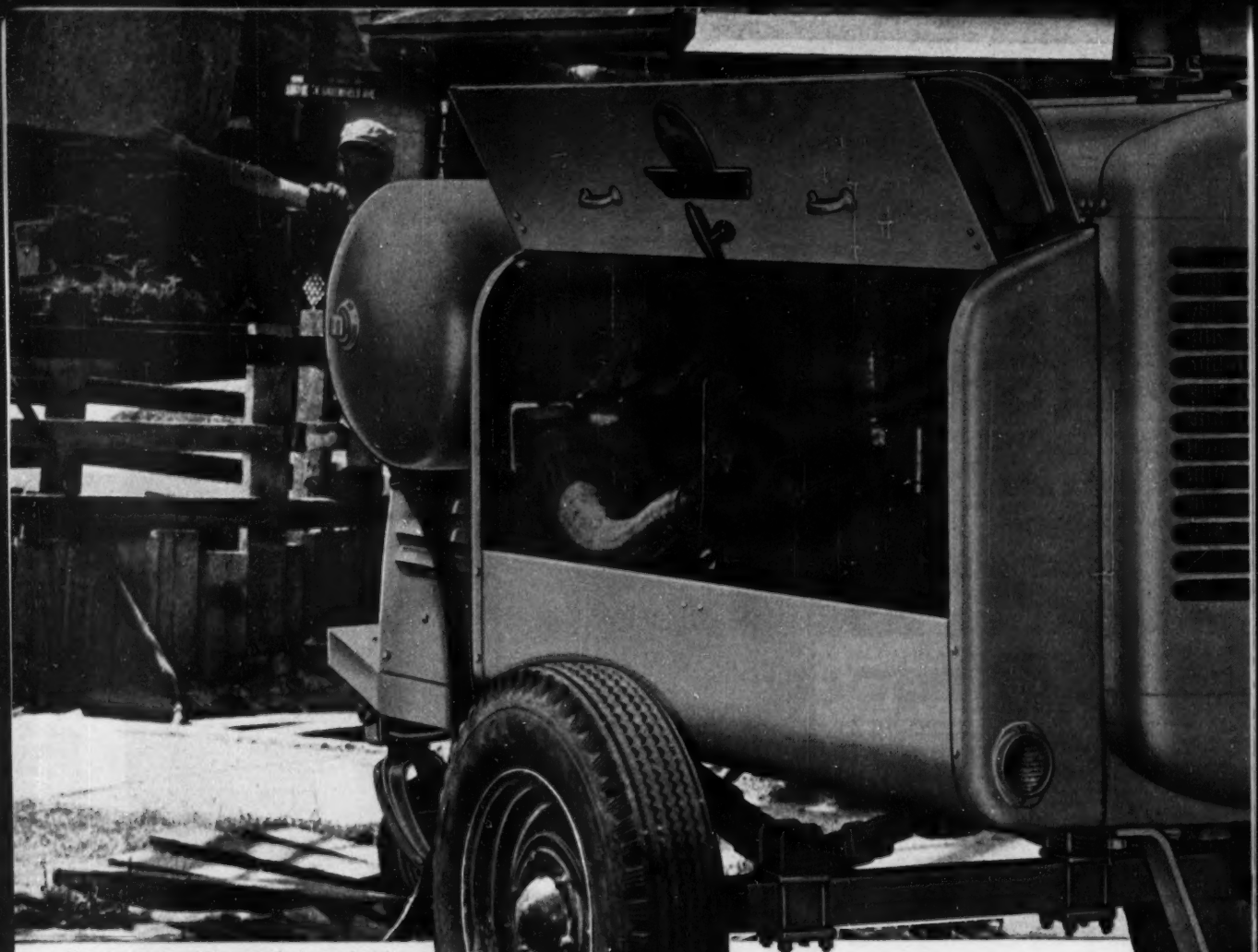
(Continued on page 126)



You can't fool a bucket operator or the inside man who checks production records and OKs upkeep bills. That's why the first Owen Bucket generally leads to the purchase of additional Owen Buckets.

High production is literally visible to the eye at each grab and low maintenance costs are apparent by the absence or infrequent appearance of repair bills.

Based on repeat order records we say—"Buy your first Owen Bucket and it is more than likely that Owens will become your 'standard' thereafter."



You can get an Airmaster that's exactly right for your job. There are 9 sizes—and 14 models — 60 cfm, 85 cfm, 105 cfm, 125 cfm, 185 cfm, 210 cfm, 250 cfm, 365 cfm, 600 cfm, gas and diesel. So you don't have to penalize yourself by working with pressures that are too low — or by operating a machine that's too big and too expensive for the job to be done.

Like the 125-cfm gas unit shown here, every Airmaster is powered by a heavy-duty Le Roi engine designed especially for compressor service.

LeRoi *gives you more for your money!*

MORE AIR POWER! MORE FOOTAGE! MORE PROFITS!

Le Roi-CLEVELAND Paving Breakers are available in sizes from 18 to 80 lbs. They really pack a wallop — make short work of breaking up the hardest concrete. Protective air cushion in front end assures long life. Well balanced for easy handling. Operators like them — and get more done.

Tractair is a combination 35-hp tractor and 105-cfm compressor that takes air power anywhere. Here, it operates a Mobildrill attachment, a lightweight Le Roi-CLEVELAND wagon-drill unit. With other attachments, Tractair can also be used for breaking, tamping, digging, lifting, backfilling, snow-plowing, etc. You save the extra cost of expensive, specialized equipment.

Le Roi-CLEVELAND DR30 Wagon Drill puts deep holes down faster, with less air, than any other wagon drill available. Uses 4" bore Le Roi-CLEVELAND Drifter. Has strong rotation, powerful hole-cleaning ability, and high drilling speed with big bits. For shallow holes, the lightweight Le Roi-CLEVELAND DR34 is available.

To get air power at its best

and air tools with a wallop

... team up **LeRoi Airmaster** Compressors and **LeRoi-CLEVELAND** Air Tools

Speed your work! Keep costs down!

YOU can't beat Le Roi Airmasters, when it comes to producing *air at low cost!* And you can't beat Le Roi-CLEVELAND Air Tools, when it comes to knocking out *extra footage!* Together, they're a thrifty team that stays on the job, hard at work, day in and day out—costs you less to own —increases your production per man-hour.

When it comes to selecting an Airmaster, you can match your job requirements exactly with the size that lets you do the most work at the least cost. That's because Le Roi's expanded Airmaster line gives you the industry's widest range of portable compressors to choose from.

Every model, every size provides these well-known Airmaster advantages: Full-pressure system that delivers *all* the air you call for, *when* you call for it. Conservative rating that provides ample power reserve — for lower fuel consumption, less maintenance, lower operating costs. Magneto ignition that gives you quick, easy starting — saves time — lets you get going faster.

You make the most of Airmaster performance, when you use Le Roi-CLEVELAND Air Tools. Their exclusive valve action assures low air consumption, high air pressure at the tools. They really stand up, too — break more pavement, dig more clay, drill more rock, tamp more fill.

Put this combination to work on your next project — and hold costs down. See your Le Roi distributor. Write for latest bulletins.

Le Roi-CLEVELAND Sinkers are available in sizes from 18 to 80 lbs., with performance advantages you want. They use less air. They're easy to handle — operators don't tire as easily. And Le Roi-CLEVELAND Sinkers have what it takes to drill more feet per shift: Strong rotation. Powerful blow. High drilling speed.

Compressors
Rock Drills
Tractair
Engines . . .

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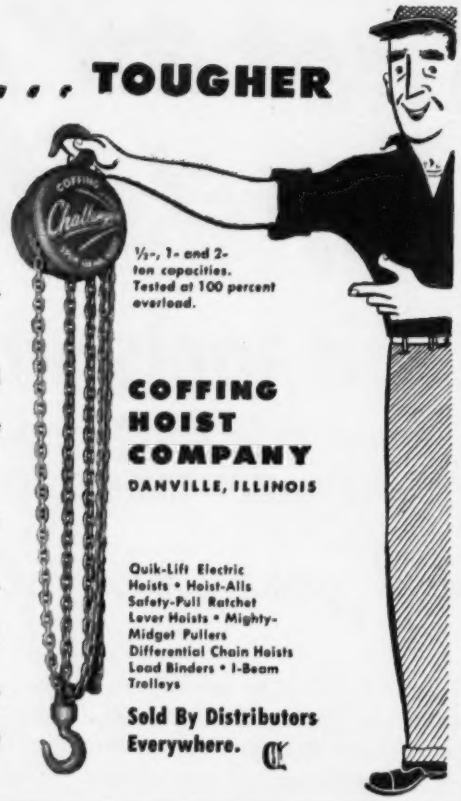
Never before such easy portability and rugged, shock-resisting strength in a spur-gear hoist . . . never such simplicity of design and ease of servicing.

Light weight—carry it in one hand; set it up anywhere. One-ton model weighs only 39½ lbs.

All Steel—even the housing. Takes shock loads and impact as only steel can.

Easy to Service—may be completely disassembled in minutes with ordinary tools. Simplest spur-gear hoist ever built.

Find out how this better spur-gear hoist can improve operations and save expense for you. Write for bulletin EN5C.



½-, 1- and 2-ton capacities. Tested at 100 percent overload.

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Quik-Lift Electric Hoists • Hoist-Alls
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Differential Chain Hoists
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Servicised Cementone Sponge RUBBER JOINT FILLER

- **Matches Color of Concrete**
- **Fully Resilient . . . Non Extruding**
- **Made in Any Degree of Compressibility**
- **Supplied in Any Thickness, Length**

Servicised Cementone Gray Sponge Rubber Expansion Joint meets the need for an inconspicuous joint filler for architectural concrete. Can be supplied in any degree of compressibility to meet your requirements.

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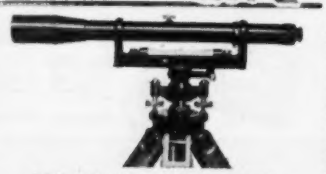
SERVICISED PRODUCTS CORP.
6051 W. 65TH ST. • CHICAGO 38, ILL.

QUALITY INSTRUMENTS
Finest Japanese Optics

GUARANTEED ACCURACY
STANDARD AMERICAN SPECIFICATIONS
Each Instrument Has Coated Lenses

4" SURVEYOR'S TRANSIT—26X
Special Introductory Offer
Complete with collapsible tripod and carrying case
$375.00



18" DUMPY LEVEL—32X
Special Introductory Offer
$270.00 Complete with fixed leg tripod and carrying case.

Write For Descriptive Folders

Write for free folders on other surveying and engineering instruments

UMECO OPTICAL DIVISION
UNION MERCANTILE CO.
465 Calif. St. • San Francisco, Calif.

(Continued from page 123)

levels, Rich and Fourth Sts., COLUMBUS, O. F. & R. Lazarus & Co., S. High and W. Town Sts., Columbus, O. CD 4/30.

General Electric Co., River Rd., Schenectady, N. Y., CA $316,000, supply 7,500 kw. turbine for municipal LIGHT PLANT;

Ingersoll-Rand Co., 11 Broadway, New York 14, N. Y., CA $68,500, supply condenser for municipal light plant DOVER, O. City, Dover, O. CD 12/9.

† **U. S. Eng.**, 237 Fourth Ave., Huntington 18, W. Va., cancelled bids to have been opened about June 5, alterations to PRODUCTION BLDG., Eng-46-022-53-45, LIMA, O. CD 4/16.

▲ **Central Constr. Co.**, Oshkosh, Wis., CA, $1,481,500 250 prefabricated rental HOUSING units, on Route 220 east of WAVERLY, O. Public Housing Admin., Wm. E. Bergeron, dir., 201 N. Wells St., Chicago, Ill. Bids Apr. 2. CD 3/16.

Carl M. Geupel Constr. Co., 1919 N. Meridian St, Indianapolis 2, Ind., CA, $600,000 cost plus. 6 story, rein.-con. off-street PARKING GARAGE, INDIANAPOLIS, IND. Dennison Parking Inc., Pennsylvania and Ohio Sts., Indianapolis, 4, Ind. Awarded Apr. 29. CD 4/7.

A. V. Stackhouse Co., 2611 Winthrop Ave., Indianapolis Ind., CA, $300,000 (cost plus) 2 story, bsmnt., 125 x 100 ft. brick, rein.-con. OFF STREET PARKING GARAGE, Meridian and New York Sts., INDIANAPOLIS, IND. Trimble Realty Corp., Chamber of Commerce Bldg. Indianapolis, Ind. CD 6/13/50.

Mike Hodges, Warsaw, Ind., CA, 13,000 sq. ft. FACTORY Addn., WARSAW, IND. Jomac Products Co., 1600 E. Winona Ave., Warsaw, Ind.

▲ **S. N. Nielsen Co.**, 3059 Augusta Blvd., Chicago, 2, Ill. CA, $1,381,815, New Skinner Elementary SCHOOL, CHICAGO, ILL. Bd. Educ., 228 N. La Salle St., Chicago, 1, Ill. Bids Apr. 10, awarded Apr. 27. CD 4/17, under LB.

▲ **Thorgerson & Ericksen**, 228 N. La Salle St., Chicago, 1, Ill., CA, $1,250,000, Harrison Technical High SCHOOL addn., CHICAGO, ILL. Bd. Educ., 228 N. La Salle St., Chicago, 1, Ill. Awarded Apr. 24. CD 3/15/51.

Ragner Benson, Inc., 4744 W. Rice St., Chicago, 44, Ill., LB, $546,245. Oakhill Grade School, ELGIN, ILL. Bid Educ., 353 E. Chicago St., Elgin, Ill. Bids Apr. 27. CD 4/6.

▲ **Blaw-Knox Constr. Co.**, 540 E. 5 St., Tulsa, Okla., CA, $1,600,000 design and construct Chemical PLANT, LEMONT, ILL. Southeastern Chemcal Co., Lemont, Ill.

Martin H. Braun, Maywood, Ill. Owner Builds, $700,000, 20 APARTMENTS, incl. 4-unit each MAYWOOD, ILL. Awarded Apr. 24.

▲ **American Community Builders, Inc.**, 105 W. Monroe St., Chicago, Ill. Owner Builds. $30,000,000 1,940 RESIDENCES, PARK FOREST, ILL. Awarded Apr. 9.

Henry Bros. Co., 228 N. La Salle St., Chicago, 1, Ill., CA, $900,000, 2 story, bsmnt. SCHOOL, RIVER FOREST, ILL. St. Luke's Parish, 528 Lathrop St., River Forest, Ill. Bids Apr. 16, awarded Apr. 27. CD 4/8.

Kucharo & Assocs., Jewett Bldg., Des Moines, Ia., LB, $597,000. 1 story high SCHOOL, WILMINGTON, ILL. School District 209, Wilmington, Ill. Bids Apr. 29. CD 4/14.

▲ **Ed. Steigerwald & Sons Co.**, 5310 W. State St., Milwaukee 8, Wis., CA, $1,000,000. THEATRE and DORMITORY, MILWAUKEE, WIS. Mt. Mary College, 2900 Menomonee River Dr., Milwaukee 10, Wis. Bids Apr. 14. CD 3/27.

▲ **Gordon Knapp Enterprises, Inc.**, Rochester, Mich. CA Est. $1,750,000. 128 brick ranch HOUSES ½ acre plots, ROCHESTER, MICH. Owner, c/o Roger B. Henry, 308½ Main St., Rochester, Mich.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Tex., Lubbock**—BUILDING RELOCATION—B.A. About 6/1—U. S. Eng., P.O. Box 1538, 2108 Central Ave. S.E., Albuquerque, N. M., building relocation, Reese Air Force Base, Serial No. Eng-29-005-53-120. Plans deposit $25. CD 8/20/51.

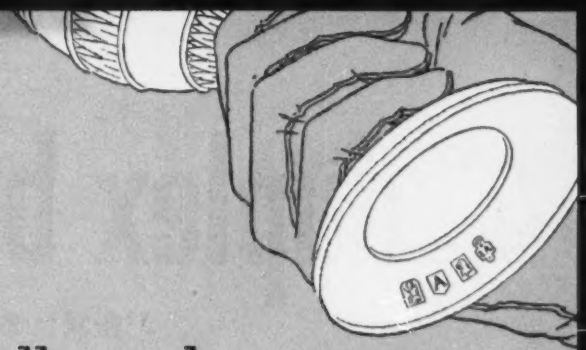
† **Wyoming**—B.A. 6/2—Bureau Reclamation, Dpt. Interior, Rock Springs, 42,600 cu. yd. excav. for dam and canal; 250 cu. yd. concrete in structures; 8.2 Mbm timber; furnishing, laying 265 lin. ft. 18 and 36 in. concrete culvert pipe; furnishing, installing 3,000 lb. metal slide gates for Prospect Diversion Dam and Canal, Eden Proj., 35 mi. northeast of Farson, Spec. DC-3946; adv. ENR 5/14. CD 10/8/52.

† **N. M., Roswell**—WATER SUPPLY—B.A. About 6/5—U. S. Eng., P.O. Box 1538, 2108 Central Ave. S.E., Albuquerque, water supply facilities, one L-shaped 10x12 ft. and 10x20 ft. masonry pump and chlorinator house with water pumping equip. and chlorinating equip.; 710 lin. ft. 6- to 12-in. water lines, Walker Air Force Base. Serial No. ENG-29-005-53-111. Plans deposit $50. CD 8/28/51.

† **N. M., Alamogordo**—WATER WELL, UTILITIES—B.A. About 6/8—U. S. Eng., P.O. Box 1538, 2108 Central Ave. S.E., Albuquerque, drilling 4 gravel wall water wells approx. 280 ft. deep and installing pumping equip. for same; 8,300 lin. ft. 4- to 10-in. water lines; fourteen 4- to 12-in. gate valves; 24,000 lin. ft. No. 6 ACSR conductor; twenty-three 35 to 40 ft. poles, Class 4 and 5, Holloman Air Force Base, Serial No. ENG-29-005-53-114. Plans deposit $50. CD 8/28/51.

▲† **Tex., Harlingen**—DORMITORIES, etc.—B.A. 6/9—U. S. Eng., P. O. Box 1229, Galveston, 15 two story

(Continued on page 129)



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This hall mark of quality is known the world over!

The Accepted D T A CO Standard

EVER since the Middle Ages, fine metal craftsmen have identified their work by means of "hall marks" of distinguishing design. Usually consisting of initials or various picture symbols, these marks express the master craftsman's pride in his finest creations.

But they do more—much more. The hall mark on a piece of gold or silverware reflects the craftsmanship, the reputation, the integrity of the maker. It gives assurance to the buyer that here is a product he can depend on, with material, design and workmanship as stated.

So it is with the trade mark of The Timken-Detroit Axle Company, shown above. It, too, is the hall mark of fine metal craftsmanship—the mark of men who do precision work on the finest of modern metals. For nearly half a century, engineering, design and manufacturing contributions of Timken-Detroit have paced the development of modern motor trucks. This Company's simple monogram tells the buyer that every product so marked comes to him from the outstanding engineering-manufacturing organization in its field.

This is the real reason that Timken-Detroit Axles and Brakes are standard equipment today on the finest of America's trucks, buses and farm vehicles. The Timken-Detroit emblem and its slogan, "The Accepted Standard," simply reflect the facts. Timken-Detroit products *are* the accepted standard—everywhere!

THE TIMKEN-DETROIT AXLE COMPANY

Detroit 32, Michigan

World's Largest Manufacturer of Axles for Trucks, Buses and Trailers

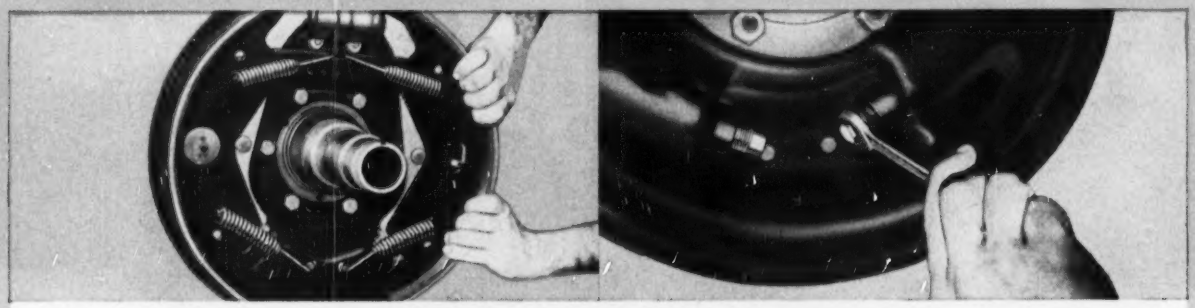
PLANTS AT: Detroit and Jackson, Mich. • Oshkosh, Wis. • Utica, N. Y. Ashtabula, Keaton and Newark, Ohio • New Castle, Pa.

New TDA duplex brakes

"DH" SERIES

...increase effectiveness!

TDA "DH" Series Duplex Brakes are *balanced* brakes! Two floating brake shoes with full-length lining contact the brake drum with *equal* pressure at every point. This eliminates high pressure contact areas —assuring quiet, positive operation at all times, under all conditions. The "DH" Series Duplex Brakes are equally effective in either forward or reverse directions.



...decrease maintenance!

NORMAL MAINTENANCE is quickly and easily accomplished. There are only 8 different parts aside from a standard straight bore hydraulic actuating cylinder. Removal and installation of brake shoes can be done in a matter of minutes. No special tools are needed. All bolts can be removed with a standard wrench.

ADJUSTMENT IS EASIER and faster with TDA "DH" Series Duplex Brakes. Because they are so simply designed and constructed, each brake shoe can be adjusted separately from the exposed side of the backing plate. There is no need to worry about heel and toe clearance.

WRITE TODAY FOR AN INFORMATIVE FOLDER ON TDA DUPLEX BRAKES. IT'S FREE!

TDA Brake Division, Ashtabula, Ohio

Gentlemen:

Please send me immediately more information on your new Duplex Brakes.

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The Accepted TDA *Standard*

BRAKES

TDA BRAKE DIVISION
THE TIMKEN-DETROIT AXLE COMPANY
ASHTABULA, OHIO

(Continued from page 126)

wood frame dormitories; 2 wood frame mess bldgs, relocation of approx. 29 existing bldgs., approx. 8,000 sq. ft. each dormitory and approx. 14,800 sq. ft. each mess; one 300-seat wood frame, 7,000 sq. ft. chapel, incl. water, sewer, gas and electrical connections to existing facilities, Harlingen Air Force Base, Inv. No. ENG-41-243-53-116. $1,000,000-$3,000,000. CD 1/8/52.

† **South Dakota**—B.A. On Or About 6/16—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., Stage V, earthwork for Fort Randall Reservoir Proj., near Lake Andes. Inv. No. CIVENG-25-066-53-242. CD 5/15/44.

Tex., Longview—TELEVISION STATION—Bids Asked—James Henry, Longview, haydite block and brick television station and studio, concrete fdn., etc. $125,-000. W. L. Kelly, Glover-Crim Bldg., engr. CD 4/23.

BIDS ASKED—BUILDINGS

Minn., Hastings—SCHOOL—B.A. 5/27—Bd. Educ., J. B. Zweber, clk., school, $900,000. Plans deposit $25, Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, archts. CD 7/1/52.

Tex., Hereford—SCHOOL—B.A. 6/10—Hereford Independent District, Hereford, high school, $750,000. Landauer, Guerrero & Shafer, 4801 Lemmon St., Dallas, engrs. B. R. Cantrell & Co., Box 1638, Pampa, archts. CD 2/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Greenleaf Constr. Co., 528 13 St., Rock Island, Ill., CA, $129,975, general contract, STADIUM, at high school, DAVENPORT, IA. Bd. Educ., 1001 Harrison St., Davenport, Ia. Bids Mar. 18.

† **George Cook Constr. Co.**, 1740 Vine St., Lincoln, Neb. LB $89,590, telephone exchange and communication bldg., Lincoln Air Force Base, Inv. 25-066-53-139, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Apr. 28. CD 3/30.

Hagstrom Constr. Co., 1567 Selby Ave., St. Paul, Minn. LB, $884,000, est. $1,100,000, 25 m.g. reservoir, OMAHA, NEB. Metropolitan Utilities District, 18 and Harney Sts., Omaha, Neb. Bids Apr. 27. CD 4/3.

Rust Eng. Co., Exchange Bldg., Birmingham, Ala., CA, $994,850 sewage disposal plant, GALVESTON, TEX. City, City Hall, Galveston, Tex. Bids Apr. 28. CD 3/23.

Frank Poston, 3308 N.W. 14 St., Oklahoma City 7, Okla. LB $247,505, est. $250,900, sanitary sewer main, 2nd and Washington to 5 and Byer Sts., OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. Bids Apr. 28. CD 4/21.

TEXAS—State Hy. Comn., Austin,
cancelled bids to have been opened May 20, grading, structures, base, surf. 5.282 mi. Hy. FM 1999 and 134, from Leigh to Louisiana line and Haggerty Creek Bridge and approaches, Control No. 1921-2 and 2-1 and 2; 632-2 and 2-5 and 6. FP No. S 271 (2) and S 176 (3), Harrison Co. CD 4/30.

City, Athens, Tex., Purchase and Hire, $45,000, water mains, ATHENS, TEX. CD 4/23.

City, Athens, Purchase and Hire. $68,000, sanitary-storm sewer lines rehablilitation, ATHENS, TEX. CD 4/23.

R. W. Kurtz & Co., Inc., 2126 Welch St., Houston, Tex. LB $145,650, est. $100,000. television station, HOUSTON, TEX. University of Houston, 705 Fannin St., Houston, Tex. Bailey A. Swenson, 3106 Brazos St., Houston, Tex., archt. Bids Apr. 14.

▲† **Harwell & Harwell**, Box 177, San Antonio, Tex., CA $1,514,800, constr. high horsepower reciprocating engine test facilities, Serial No. (IFB) 41-608-53-496B. KELLY AIR FORCE BASE, TEX. U. S. Govt., c/o Contg. Officer, SAAMA, Kelly Air Force Base, San Antonio, Tex. Bids Mar. 12, awarded Apr. 27. CD 3/16, under LB.

Boyd Callan, Inc., Box 3146, Westview Station, Waco, Tex., LB $70,916, est. $75,000, river intake and pump station and controls, MINERAL WELLS, TEX. City, c/o mayor, Mineral Wells, Tex. Bids Apr. 28. CD 4/21.

City, Pittsburg, Tex., Purchase and Hire. $37,118, WW settling basin, PITTSBURG, TEX.

Darrell Constr. Co., Rockdale, Tex., CA $75,151, swimming pool and bathhouse, ROCKDALE, TEX. City, Rockdale, Tex. Frank C. Dill, 2506 Richton St., Houston, archt. Rivoire & Poole, 2506 Richton St., Houston, Tex., engr. Bids Apr. 17.

† **H. B. Zachry Co.**, P.O. Box 2570, San Antonio, Tex., LB $108,074, est. $105,745, sewage treatment plant, Connally Air Force Base, ENG-41-443-53-29, WACO, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Apr. 29. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Chas. F. Curry**, 921 Baltimore Ave., Kansas City, Mo. Owner Builds. $1,000,000. HOUSING, 12 duplexes and 75 single dwellings, 45 and Lister Sts., KANSAS CITY, MO. S. C. Kenney, 921 Baltimore St., Kansas City, Mo., archt. CD 12/3.

Country Club Homes, Inc., c/o George Miller, Victor Bldg., Kansas City, Mo. Owner Builds. $300,000. 30 DWELLINGS, KANSAS CITY, MO. H. E. Duncan, Victor Bldg., Kansas City, Mo., archt.

Bd. Pub. Utilities, c/o G. B. Little, City Hall, Kansas City, Kan., bids Apr. 8 cancelled because of wage rate dispute, warehouse, shed, storage transformer repair, KANSAS CITY, KAN. CD 3/25.

▲ **Dennehy Constr. Co.**, 504 W. Noble St., Oklahoma City, Okla. LB $1,147,616. HOSPITAL, ARDMORE, OKLA. Southern Oklahoma Memorial Hospital, Ardmore, Okla. CD 2/4.

▲ **Cosden Petroleum Corp.**, Big Spring, Tex., cancelled bids, REFINERY extens., BIG SPRINGS, TEX. $3,-000,000. CD 4/6.

▲ **J. F. Pritchard & Co.**, 908 Grand St., Kansas City, Mo., CA, $7,350,000 design and construct, electric POWER PLANT: Approx. $178,500, WAREHOUSE, $94,425 SWITCHGEAR HOUSE and GAS REGULATOR HOUSE near DENVER CITY, TEX. Southwestern Public Service Co., 3 and Polk Sts., Amarillo, Tex. (Correction—name of owner). CD 4/30, under CA.

▲ **Allied Chemical & Dye Corp.**, Orange, Tex., has not awarded contracts for addnl. chemical (plastics) PLANT units, CA $16,500,000; ethyleen-glycol chemical PLANT, CA Approx. $4,250,000; water supply and lines, $37,775; road and area parking zone constr. and hard type paving, $65,000; dirt and earthwork, for site and area of chemical plant, $48,500, ORANGE, TEX. (Correction—status). CD 1/9 and 1/27, under CA.

† **Campbell & Kay**, Box 4091, Station A, Albuquerque, N. M., CA. $682,934. DATA REDUCTION BLDG., White Sands Proving Grounds, Inv. No. Eng-29-005-53-37, LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Apr. 8, awarded Apr. 27. CD 4/15, under LB.

▲† **Robert E. McKee, General Contractor, Inc.**, Box 562, El Paso, Tex., CA. $1,257,300, ENGINEERING TEST BLDG., White Sands Proving Grounds, Inv. No. Eng-29-005-53-49, LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Feb. 17, awarded Apr. 27. CD 2/26, under LB.

▲† **Lembke, Clough & King**, Box 144, Albuquerque, N. M. CA. $1,302,831, HIGH SCHOOL and GYMNASIUM, ROSWELL, N. M. Roswell School Dist., Roswell, N. M. Bids Apr. 2. CD 4/15, under LB.

R. E. McKee, General Contractor, Inc., Box 1706, Santa Fe, N. M., LB $509,100, BANK, SANTA FE, N. M. First National Bank, 57 Shelby St., Santa Fe, N. M. Meem, Zehner, Holien & Assoc., 785 Camino Del Monte Sol, Santa Fe, N. M., archts.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Calif., Miramar**—STORAGE FACILITIES—B.A. 5/22—Dpt. Navy, San Diego, ammo. storage facilities, Naval Air Station, NOY 76817, Spec. 37468, $500,000. Plans deposit $60. CD 1/8/51.

▲† **Washington**—B.A. 5/27—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, ten 103,300-kva transformers for Chief Joseph Dam, Inv. 53-67. CD 4/20, under LB.

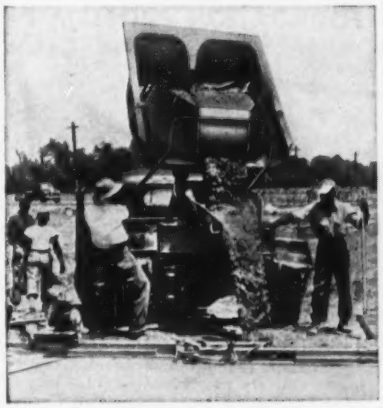
▲† **Washington**—B.A. 6/1—U. S. Eng., 4735 E. Marginal Way, Seattle, 4 generators for Chief Joseph Dam, CD 4/20, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **UTAH**—State Rd. Comn., State Capitol, Salt Lake City,
W. W. Clyde & Co., P. O. Box 231, Springville, Utah.

Job site concrete at rock bottom cost



The mixing plant you see above is not fancy. But it produced 100 yards of *top quality* concrete a day.

The Dumpcrete you see at left is a *rugged low-cost* unit that hauled every load *8 miles*, and delivered uniform concrete to the exact spot it was needed.

"We knew from experience what our 6 Dumpcretes could do," reports H. G. Helgerson, Pres. of McKoy Helgerson of Greenville, S. C. "So we set up the plant at a railroad siding 8 miles from our job at the Parris Island Marine Base."

"Our central plant and the Dumpcretes made a perfect team for handling the scattered pours," he says. "We're money ahead, because we've compared the costs."

MAXON DUMPCRETE

Fastest from Plant to Pour

The Maxon Construction Co., Inc., Manufacturing Div.
670 Talbott Bldg., Dayton 2, Ohio

Send Booklet: "12 Ways to Set Up for Central Mixing"

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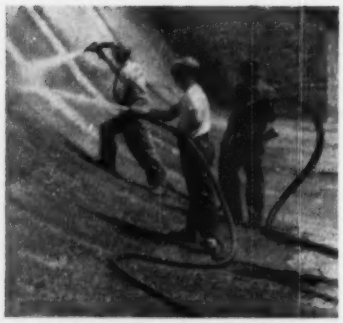
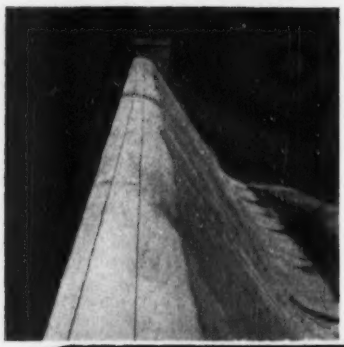
Firm_____

Address_____





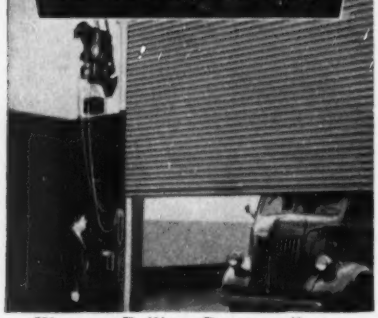
DAM REINTEGRATED WITH "GUNITE" BY CEMENT GUN CO.

Photograph above, left, shows Cement Gun Company crew preparing the spalled and disintegrated downstream side of a Virginia municipal hydro-electric dam for "Gunite." The "Gunite" was applied over reinforcing mesh to a depth of 2 inches greater than the original lines of the dam making the structure stronger and more durable than when it was originally built. To insure years of trouble-free service, "Gunite" was also applied on the up-stream side to eliminate seepage through the dam. The finished job is shown in photograph below, left.

Completely pictured and described in our latest catalog, are many instances of dam construction and repair together with many other types of "Gunite" jobs we have done. A request, on your letterhead, for Catalog A2400 will bring your copy by return mail.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE CEMENT GUN

Clear the ENTIRE Opening for Doorway Efficiency



Kinnear Rolling Doors coil up and out of the way, clearing the entire opening, from jamb to jamb and floor to lintel! The rugged interlocking steel-slat curtain glides into instantaneous action with either manual or push-button control. Write now for all details.

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Saving Ways in Doorways
KINNEAR ROLLING DOORS

Tough FOUNDATION PROBLEM ?

call Western !

Over the past 30 years, WESTERN has continually developed and perfected solutions to foundation problems—creating entirely new types of piles and new foundation techniques—an outstanding contribution to foundation science and practice.

Consultation invited.

COMPLETE FOUNDATIONS FOR
Industrial Plants, Power Plants, Piers and Docks, Bridges, Airports, Steel Plants, Housing Projects, Commercial Buildings, Schools, etc.

WESTERN FOUNDATION CORPORATION
2 Park Ave., New York 16
308 W. Washington St.
Chicago 6, Ill.

CA $621,641, est. $650,679. 3 in. plant mixed bit. roadway surf. 7.342 mi. U.S. 91 between Utah Hot Springs and Five Points, Weber and Box Elder Counties; CA $67,388, est. $71,230, plant mixed bit. surf. road 0.831 mi. in Provo between 5 North St. and Provo River Bridge, Utah Co.;

Gibbons & Reed Co., 259 W. Third South St., Salt Lake City, Utah. CA $130,327, est. $126,693 b. conc. 1.454 mi. State St. between 6400 South St. and Midvale, Salt Lake Co.;

Thorn Constr. Co., Inc., P. O. Box 111, Springville, Utah. CA $401,956, est. $360,723. 3 in. plant mixed bit. surf. U. S. 6 and 50 between Gilluly and Soldier Summit, Utah Co. Grand total $1,221,312. Bids Apr. 28. CD 4/16.

† **Arthur E. Shepard**, 1360 3 Ave., Yuma, Ariz., LB $64,765 addnl. fuel storage facilities, Yuma County Airport, ENG-04-353-53-135, YUMA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Apr. 23. CD 3/31.

▲ **WASHINGTON**—State Hy. Comn., Olympia,

Pacific Sand & Gravel Co., Centralia, Wash., CA $278,795, clearing, grading, surf., paving 6.7 mi. Hy. No. 5, Morton to Kosmos, Lewis Co.;

Gibbon & Reed, Cascade Locks, Ore., CA, $454,444. clearing, draining 2.543 mi. Hy. 1 from Junction with Hy. 12 to Salzer Creek, FAP UI 001-2 (11), Lewis Co.;

F. R. Hewett, Parkwater, Wash., CA. $144,043. bit. 21 mi. Hy. 3-D, junction with Hy. 3 to Eureka, Walla Walla Co.;

Standard Asphalt Paving Co., Chronicle Bldg., Spokane, Wash., CA, $63,716 non-skid single seal tr. 74.31 mi. Hys. 3, 3-H and 11-B, Colfax to Dusty et al, Whitman, Spokane and Adams Counties;

J. A. Bryant, Hutton Bldg., Spokane, Wash., CA, $108,892, stockpiling crushed stone surf., mineral aggregates on Hys. 9, 14 and 9-E from junction of Hys. 9 and 14 to Gorst, et al, Kitsap, Mason, Jefferson Counties. Grand total $1,049,890. Bids Apr. 28, awarded Apr. 29. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

M. J. Brock & Sons, Inc., 2894 Rowena Ave., Los Angeles, Calif., LB, $447,353, 1 story, rein.-cn. high school AUDITORIUM, COLTON, CALIF. Colton High School Dist., Colton, Calif. Bids Apr. 24. Kistner, Wright & Wright, 816 W. 5 St., Los Angeles, Calif., archts. CD 1/23/51.

R. Weiner, 5100 Tobias St., Sherman Oaks, Calif., CA $552,000, 46 stucco DWELLINGS, Bigby and Farm Sts., DOWNEY, CALIF. R & H Constr. Co., 247 S. Beverly Dr., Beverly Hills, Calif.

▲ **Pan American Homes, Inc.**, 9434 Long Beach Blvd., South Gate, Calif. Owner Builds. $1,645,000. 175 stucco DWELLINGS, Samoline, Morning, Smallwood, Bessen and Dalen Sts., DOWNEY, CALIF.

▲ **Davis, Keusder & Brown**, 4915 Exposition Blvd., Los Angeles, Calif., CA, $1,798,800, 2 story, rein.-con. PLANT OFFICE, EL SEGUNDO, CALIF. Douglas Aircraft Co., Inc., 827 Lapham St., El Segundo, Calif. CD 4/24, under LB.

† **Swinerton & Walberg**, 225 Bush St., San Francisco, Calif., CA $295,000, Prop. 1, gunite FABRICATION and ASSEMBLY BLDG. No. 102, University of California Research Laboratory, LIVERMORE, CALIF. Atomic Energy Comn., 220 Bush St., San Francisco, Calif. Awarded Apr. 22.

▲ **Mac-Bright**, 5961 Los Santos Dr., Long Beach, Calif., Owner builds, $1,000,000, 115 stucco DWELLINGS, Los Santos, Fairbanks, El Paseo and Bayards Aves., LONG BEACH, CALIF. Poper & Lockett, Farmers & Merchants Bldg., Long Beach, Calif., archts.

M. J. Brock & Sons, Inc., 221 Palo Verde Ave., Long Beach, Calif., CA, $353,600, 40 stucco DWELLINGS, Tevis, Canehill, Snowden, McHabb Aves., LONG BEACH, CALIF. Larcmont Development, 2894 Rowena Ave., Los Angeles, Calif. Poper & Lockett, Farmers & Merchants Bldg., Long Beach, Calif., archts.

Crown Constr. Co., 1231 S. La Brea Ave., Los Angeles, Calif., LB $342,749, 1 story, frame, stucco Bel Air No. 1 SCHOOL, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Apr. 24.

James I. Barnes Constr. Co., 1119 Montana Ave., Santa Monica, Calif., LB, $731,000, JUVENILE HALL, Schedule 2 LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids Apr. 28. Kaufman & Stanton, 627 S. Carondelet St., Los Angeles, Calif., and Austin, Field & Fry, 2311 W. 3 St., Los Angeles, Calif., archts.

▲ **Bowles & Co.**, 8941 Santa Monica Blvd., Los Angeles, Calif. Owner Builds. $1,183,200, 170 DWELLINGS, Bascom, Picovista, Poinciana, Rivera, Wheelock and Woodhue Sts., PICO-RIVERA, CALIF.

Buttress & McLellan Inc., 1900 Beverly Blvd., Los Angeles, Calif., CA, $162,000, 140x260 ft. panel crete WAREHOUSE, VENICE, CALIF. Stanley Homes Products 8820 Bellanca Ave., Los Angeles, Calif. Denver Markwith, 1900 Beverly Blvd., Los Angeles, Calif., archt.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Montreal—TRAFFIC LIGHTS—B.A. 5/26—Municipality, City Hall, traffic lights at 47 intersections. Plans deposit $25. H. A. Gibeau, City Hall, engr.

BIDS ASKED—BUILDINGS

▲ Ont., Toronto—HOUSES—B.A. 5/20—Central Mortgage & Housing Corp., 234 Bloor St. W., 400 houses located west side of Greater Toronto. $4,000,000. E. R. Collins, c/o owner, engr. CD 1/28/48.

(Continued on page 133)

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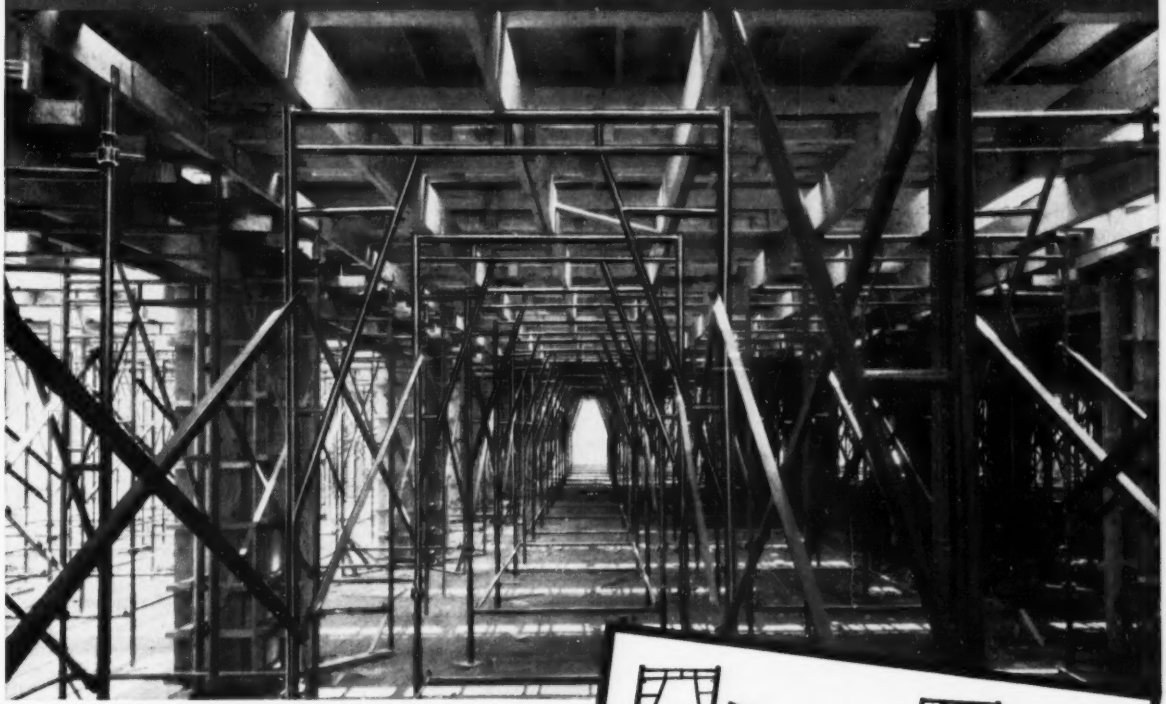

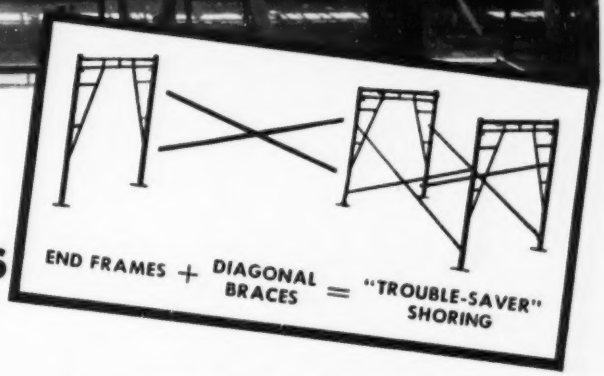

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The builders needed only one set of forms to go up the 12 stories, pouring about one-third of a floor area at a time, straight through the winter.

Pouring schedules and strength specifications (3000 psi, increased to 3600 in cold weather) were most satisfactorily met with ready-mixed concrete, processed in truck mixers *certified* to have the correct design, capacity, mixing speed, mixing action and water control to insure a homogeneous material of uniform predetermined strength.

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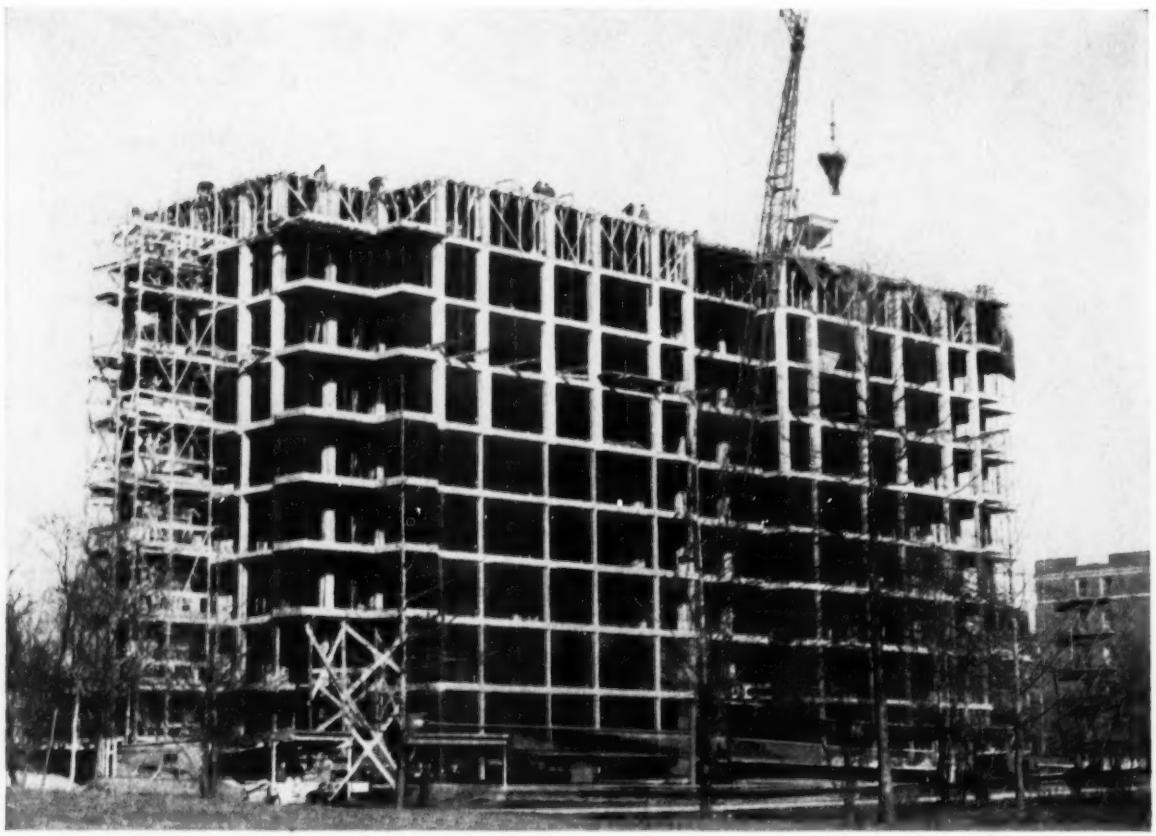

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Waterloo, Iowa

The Jaeger Machine Co.
Columbus, Ohio

The T. L. Smith Co.
Milwaukee, Wis.

Worthington Corporation
Plainfield, N. J.

(Continued from page 130)

SOON LETS CONTRACT—BUILDINGS

▲ **Que., Quebec City**—DWELLINGS—Syndicate Co-op Familiale, 391 Montmartre St., soon lets contract three hundred fifty 30x35 ft. dwellings in St. Sauveur Ward. $3,500,000. G. Amyot, 2 Belvedere Ave., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Burns & Dutton Co. Ltd., 5440 1 St. W., Calgary, Alta., CA, **$118,945,** buildings, access roads, Air Station CLARESHOLM, ALTA. Dpt. National Defence Air, Ottawa, Ont. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man., engrs.

Poole Constr. Co. Ltd., 10503 109 St., Edmonton, Alta. CA, **$50,000** river intake for W W, RALSTON, ALTA. Govt. of Canada, Dpt. National Defence, Administrative Offices, Ottawa, Ont. K. F. Hurst, 400 Kensington Bldg., Winnipeg, Man., engr.

BRITISH COLUMBIA — Province of British Columbia, Douglas Bldg., Victoria,

General Construction Co. Ltd., Granville Island, Vancouver, B. C. and **Emil Anderson Constr. Co.** Hope, B C., LB. **$786,191,** reconstr. 6.58 mi. Trans-Canada Hy., Spences Bridge-Martel Section. Bids Apr. 15. CD 4/9.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Kennett Constr. Ltd.,** 1630 W. 5 Ave., Vancouver, B. C., LB, **$1,517,400,** 3 story, concrete 210-bed care and treatment of tubercular mental patients HOSPITAL, isolation ward, X-ray section, kitchen and dining facilities, ESSONDALE, B. C. B. C. Govt., Parliament Bldgs., Vancouver, B. C. Bids Apr. 22. CD 3/25.

▲ **Armstrong & Monteith Constr. Co.,** 1449 Hornby St., Vancouver, B. C., LB, **$1,061,804,** rein.-con. John Oliver High School addn., 41 and St. George Sts., VANCOUVER, B. C. Vancouver School Bd., 1500 Block W. 10 St., Vancouver, B. C. Bids Apr. 17. CD 3/17.

T. A. Andre & Sons Ltd., 580 Brock St., Kingston, Ont., CA, **$500,000,** 3 story, 108x114 ft., stone faced ADMINISTRATION, KINGSTON, ONT. Queen's University, Kingston, Ont. Bids Apr. 27. CD 3/30.

▲ **Robertson Constr. & Eng. Co. Ltd.,** 512 Clifton Ave. Niagara Falls, Ont., CA, **$1,465,000,** Manor Park SHOPPING CENTER, St. Laurent Blvd., OTTAWA, ONT. Dennison Houses Ltd., 69 Spark St., Ottawa, Ont. Belcourt & Blair, 233 Metcalfe St. Ottawa, Ont., archts. CD 3/13.

Ashton Bros., 1805 Wilson Ave., Toronto, Ont., Owner Builds, **$750,000** 2 story, bsmnt., concrete, concrete block APARTMENTS, Wilson Ave. and Keele St. TORONTO, ONT.

Chas. G. Pare, 5333 Pare St., Montreal, Que., Owner Builds, **$400,000** 6 story, concrete, brick, steel FACTORY and OFFICES, MONTREAL, QUE. W. J. Rosenberg, 1226 Ste. Catherine St., Montreal, Que., archt.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—SHOP—B.A. 5/29—U. S. Eng., 3013 Arcade Bldg., Seattle 1, Wash., 1 story, 107x325 ft., rein.-con., masonry aircraft maintenance shop, Elelson Air Force Base, Eng-95-507-53-76. $804,000. Plans deposit $25. CD 11/25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **ALASKA**—Bureau P. Rds., Dpt. Interior, Juneau, **S. Birch & Sons and Lytle & Green,** Securities Bldg., Seattle 1, Wash., LB. **$1,070,269,** est. $1,000,000. imprv. Tongass Hy. near Ketchikan, Proj. 1-C4 D7, E5, H2. Bids Apr. 30. CD 4/9.

▲† **Lytle & Green and S. Birch & Son,** Securities Bldg., Seattle 1, Wash. LB **$4,229,268,** est. $4,437,295, ten 2 story, bsmnt., frame 8-family quarters, ENG-95-507-53-80; and twenty 2 story, bsmnt., frame 8-family quarters, ENG 95-507-53-56. Ladd Air Force

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This all steel "handy-hut" fills a thousand needs of contractors. Its formed steel frame is quickly bolted together and all siding and roofing panels attached by the famous USF "Clip and Wedge" method that requires no holes in sheets.

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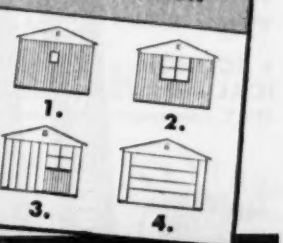

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Base, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Apr. 28. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Peter Kiewit Sons' Co.**, 1300 Aloha St., Seattle, Wash., and **Fred J. Early Jr. Co.**, 369 Pine St., San Francisco, Calif. CA. $12,243,078, est. $11,850,802. three 3 story, 13,000 sq.ft. rein.-con. BARRACKS, 1 story, part bsmnt., 7,425 sq.ft. concrete, masonry POST HEADQUARTERS and PHONE EXCHANGE, two 70x365 ft. concrete, masonry organizational MAINTENANCE SHOPS, FAMILY QUARTERS, other bldgs., Army Training Station and Army Indoctrination Station, Eng-95-507-53-43, BIG DELTA, ALASKA. U. S. Eng., Evergreen Hall, 313 Arcade Bldg., Seattle, 1, Wash. CD 4/20, under LB.

Proposed Projects

WATER SUPPLY

† **Ga., Fort Benning**—U. S. Eng., 200 East St. Julian St., Savannah, water system imprvs. $1,200,000. Wiedeman & Singleton, P.O. Box 1878, Atlanta, consult. engrs.

Ind., Osceola—Town Bd., WW sys., pumping equip., pump house, distr. sys., elevated tank, $160,000. Charles W. Cole & Son, 220 W. La Salle St., South Bend, consult. engrs.

O., Toledo—Comrs. Lucas Co., Court House, Water Supply Line No. 407, in Main Sewer Districts Nos. 8, 10 and 15, Adams Twp. $311,000. Raymond E. Hall, c/o owner, co. sanitary engr. CD 9/26/49.

Tenn., McMinnville—City, WW imprvs. $778,500. J. Sanders Parker, 816 8th Ave. S., Nashville, consult. engr.

Tex., Longview—City, WW, water mains, distr. lines exten. $125,000; rehabilitation existing WW sys. $55,000.

SEWERS, WASTE DISPOSAL

▲ **Calif., Modesto**—City, City Hall, voted $2,450,000 bonds, enlarging sewer trunk lines. CD 12/20/46.

Calif., Salinas—Monterey Co., Court House, Salinas, sewage disposal plant, $390,000 CD 2/14/45.

Ind., Brownstown—Bd. Wks., Brownstown, sewage treatment plant and sewerage sys. $200,000 Lennox & Matthews, 644 E. Maple Rd., Indianapolis, Zone 5, consult. engrs.

Minn., Cloquet—City, J. W. Boyer, clk., sewage treatment plant. $550,000, Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, consult. engrs. CD 2/4.

Minn., Sleepy Eye—City, R. Kunkel, clk., sewage disposal plant. $250,000, Pfiefer & Shultz, 702 Wesley Temple Bldg., Minneapolis, consult. engrs.

Mich., Blissfield—Village, 2 interceptor sewage disposal plants, sewers, 4 sanitary sewer lines, combination sewer main, sewage plant treatment facilities, $600,000. Finkbeiner, Pettis & Strout, 518 Jefferson Ave., Toledo, O., consult. engrs.

Mo., St. Louis—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, constr. Sect. 1 of Vista Ave. branch-Tower Grove-Manchester Rd. relief sewers from point 645 ft. west of 39 St. to Spring Ave. $125,000. CD 4/26/43.

O., Canfield—Village and Canfield Twp., Canfield, sewage disposal plant, $220,000.

O., Galion—City, voted $300,000 bonds Nov. 4, expand sewage disposal to accomodate 15,000 population. $240,000. Paul Uhlmann & Assoc., 1441 N. High St., Columbus, consult. engrs. CD 9/4.

Okla., Midwest City—City, sanitary main sewers. $800,000. J. M. Plank 1323½ N. Robinson St., Oklahoma City, consult. engr. CD 9/10.

Tex., Dallas—City, City Hall, Main and Harwood Sts., Ash Creek Trunk Sewer Line. $110,000. Koch & Fowler, 3900 Lemmon St., consult. engrs. CD 11/21/51.

Tenn., McMinnville—City, sanitary sewer imprvs. $992,000. J. Sanders Parker, 816 8th Ave. S., Nashville, consult. engr.

Tex., Longview—City, sewage disposal plant. $100,000; sanitary sewer collection sys. exten. $175,000; rehabilitation of existing sanitary-storm sewerage sys. $70,000.

Tex., Spring Branch—Herman Kuehn & Son Lumber Co., 4713 N. Shepherd St., Houston, sanitary sewers, $68,000; storm sewers, $62,500, on 112-acre tract, 11 mi. west of downtown Houston.

BRIDGES

▲ **Mich., Bay City**—City, George MacPhail, mgr., rein.-con., steel Midway Bridge, $3,500,000.

▲ **TENNESSEE**—State Hy. Dpt., Nashville,
Shelby Co.—rebuild Illinois Central overpass on Crump Blvd. in Memphis, $1,500,000.

Tenn., Knoxville—Bd. Comrs. Knox Co., Court House, bridge in Kimberline Heights, $480,000.

STREETS AND ROADS

▲ **MAINE**—Maine Turnpike Auth., 123 Payne St., South Portland,
Portland-Augusta — Turnpike-Portland to Augusta toll road, incl. 60 underpasses, bridge over Amascoz River between Lewiston and Auburn, 4 railroad crossings, $42,000,000. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York, N. Y., consult. engrs. Bonds to finance are being offered for sale.

Mo., Kansas City—Jackson Co., Court House, 12 and Locust Sts., Kansas City, Mo., pave Holmes Rd., 85-95 Sts., $90,000; exten. Pink Hill Rd., $90,000. Harvey A. Jones, hy. engr.

N. C., Durham—City, 1953 street resurf. $437,700.

▲ **OHIO**—State, c/o Dpt. Highways, Columbus,
Cuyahoga Co.—final part of East Memorial Shoreway from E. 22 St. to Marquette Ave.; divided 8-lane highway and parking lot interchanges Cleveland, $2,500,000. Louis L. Drasler, 10100 Broadway, Cleveland, regional state engr.

▲ **OHIO**—State Hy. Dpt., Columbus, and City of Zanesville, City Hall, Zanesville,
Muskingum Co.—6 mi. expressway to bridge both Licking and Muskingum Rivers to carry U. S. Rte. 40 traffic through Zanesville. $12,000,000. Alden E. Stilson & Assoc., 209 S. High St., Columbus, consult. engrs.

O., Cleveland—City, City Hall, Zone 14, grading, draining, paving E. 188 St. from Harvard Ave. to E. 186 St., $75,000; Brysdale Ave. from Rocky River Dr. to Harwel Rd., $70,000. John C. Wenrick, city comr. of engr. CD 11/7.

TENNESSEE—State Hy. Dpt., Nashville,
Shelby Co.—pave Rte. 14 from Raleigh to Mudville Rd. $480,000.

Tenn., Memphis—City, City Hall, 1953 street imprvs. $600,000.

Tex., Longview City, street imprvs. $200,000. CD 11/5//51.

▲ **Tex., Plains-Yoakum Co.**, John Derryberry, judge, Plains, defeated bonds, 80 mi. highway paving, $1,675,000. Hasie & Green, Wilson Bldg., Box 1139, Lubbock, consult. engrs.

Puerto Rico—Dpt. P. Wks., San Juan, 2.11 kilometers Boca municipal road, Municipality of Guayanilla, $90,000; 3.3 kilometers of Higuillales municipal road, Municipality of Naranjito, $400,000.

EARTHWORK, WATERWAYS

▲† **California**—Alameda Co. Flood Control & Water Conservation District, 1225 Fallon St., Oakland, bond election tentatively set for June 9, levees, channels, dams, etc. $6,954,000.

Calif., Santa Ana—Orange Co., Court House, Loftus Diversion Channel, Fullerton, $280,797. Harrison & Wooley, 308 W. 5 St., Santa Ana, consult. engrs.

▲ **ONTARIO**—Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, Sir Adam Beck development addn. 625 hp., water storage reservoir, pumping station, widening of power canal now being excavated, etc. Niagara Falls, Approx. $5,000,000. CD 9/50.

AIRPORTS

▲ **Calif. Oakland**—AIRPORT IMPRVS.—City, City Hall, voted $10,000,000 bonds, constr. and imprvs. to Oakland Municipal Airport. CD 2/9.

Okla., Tulsa—SHOP, etc.—American Airlines, 100 Park Ave., New York, N. Y., plating and accessory shop, $200,000; aircraft docks and storage, $300,000. CD 2/3.

LATIN AMERICA

▲ **B. W. I. Bahamas, Nassau**—New Providence Hotel Co., Ltd., Nassau, plans hotel at Emerald Beach, $1,000,000.

▲ **Mexico, Vera Cruz**—Gulf Sulphur Corp., c/o Patrick W. Brady, vice pres., 2132 Lexington St., Houston, Tex., U.S.A. and Vera Cruz, Mexico, plans. Frasch process sulphur extraction plant. $2,500,000. Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh, Pa., U.S.A., consult. engrs. CD 8/20.

AMERICANS ABROAD

Malaya, Singapore — OFFICE — American International Underwriters Corp., 102 Maiden Lane, New York N. Y., U. S. A., plans by John Graham & Co., Dexter Horton Bldg., Seattle 4, Wash., U. S. A., 12 story office. $500,000

PUBLIC BUILDINGS

Ala., Athens—SCHOOL—City City Hall, plans by Evan M. Terry, Brown-Marx Bldg., Birmingham. Elementary-Junior High School. $500,000.

Ark., Benton—HOSPITAL—Saline County Hospital, Benton, hospital. $500,000.

▲ **Calif., Duarte**—SCHOOL—Duarte School District, 1527 Shephard Dr., $300,000 bond election June 16, Royal Oaks School, $1,000,000. CD 10/22/51.

Calif., Fresno—JAIL—City, City Hall, defeated $600,000 bonds, jail. CD 3/31.

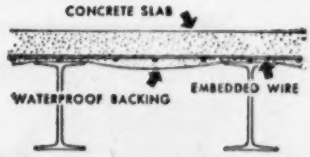
(Continued on page 137)

Architect: C. H. Blohm, Miami

Miami's largest, most important new office building in 16 years uses **Steeltex Floor Lath**

The new steel and concrete Pan American Bank Building —the first major office building constructed in Miami since 1937—was designed for long life, low maintenance, and economy in construction. Each concrete deck including the roof was poured over thousands of square feet of durable, economical Steeltex Floor Lath—the modern, time and money-saving, galvanized steel wire concrete reinforcing which *carries its form on its back* (see note at right) and permits continuous work on the floor below.

Steeltex offers speed and economy because it can be installed rapidly. It insures strength, durability and safety because the galvanized welded wire mesh is properly embedded, and the slab is properly cured because the tough waterproofed backing retains the water, thus insuring the correct water-cement ratio. For detailed information about Steeltex Floor Lath, the combined form and reinforcing, see our catalog in Sweet's or write for catalog D.C. 133, Dept. ENR, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pennsylvania.



Note, *in the cross section and closeup that the weight of the wet concrete forces the backing away, which permits the galvanized wire mesh to assume its proper position in the slab. Steeltex Floor Lath also performs two other functions. It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.*

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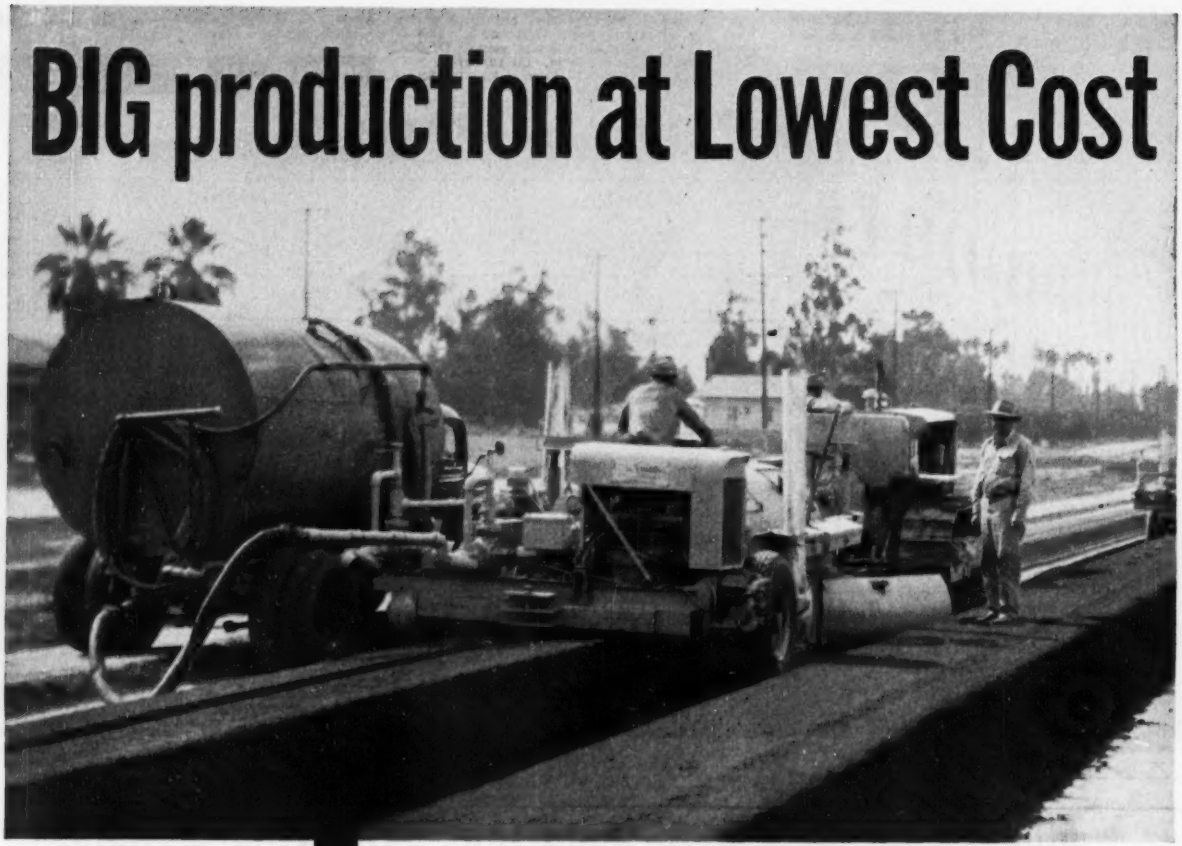

Two Model 54 Wood Roadmixers operating simultaneously on parallel windrows while mixing cement-treated base for a superhighway.

Model 54 WOOD Roadmixer

On those big stabilization jobs where quantity production is a paramount factor, there isn't a piece of equipment equal to the Model 54 Wood Roadmixer. In speed, capacity and quality of paving, it's the "Blue Ox" of all mix-in-place mixers — the acknowledged pace setter for stabilization construction.

Tractor-pulled and tractor-powered, it will turn out 350 tons per hour plus — all day long. It is a complete traveling mixing plant. Regardless of materials or binders, you get **lowest cost** per square yard or per ton with a Model 54 Wood Roadmixer.

Bid those **big** jobs. Use a Model 54 Wood Roadmixer for **on-time** production and highest quality paving. See your nearest Wood distributor or write us direct for complete information and prices on the Model 54 Wood Roadmixer. Also available are the Models 36 and 42 for small and medium jobs, and the Wood Preparizer, Windrow Proportioner, Spreader Box and Tank Trailers.

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Attached in 30 seconds to a dump truck, the Wood Spreader Box measures and forms materials into accurately proportioned windrows as the truck moves along. Windrow capacities of 2 to 8 cu. ft. are quickly and easily controlled by adjustable tailgate. The Wood Spreader Box eliminates guesswork in measuring imported materials placed on sub-grades or bases.

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▲ **Calif., Grossmont**—SCHOOL—Grossmont Union High School Dist., Grossmont, voted $2,500,000 bonds Apr. 21, high school.

Calif., Piedmont—SCHOOLS—City, City Hall, voted $775,000 bonds, schools. CD 1/30.

▲ **Calif., San Diego**—SCHOOLS—San Diego Unified School Dist., 825 Union Ave., voted $15,800,000 bonds Apr. 21, schools. CD 2/13.

▲ **Calif., Santa Rosa**—SCHOOL—Santa Rosa High School District, Santa Rosa, voted $1,500,000 bonds, Junior High School. CD 1/22.

▲ **Calif., Sunnyvale**—SCHOOLS—Fremont Union High School District, Sunnyvale, $2,000,000 bond election June 1, two high schools.

Calif., Yuba City—SCHOOL—Yuba City Union High School District, Yuba City, $600,000 bond election June 4, high school addns., CD 4/8.

▲ **Fla., Tampa**—HOSPITAL—City, City Hall, plans by Norman F. Six & Eliot C. Fletcher, 404 Marion St. municipal hospital addn. $2,000,000 CD 5/7/51.

▲ **Ill., Carbondale** — LIBRARY — State, State Capitol Springfield, plans by Louis Gerding ch. state archt. library at Southern Illinois University, $2,500,000 CD 4/9/45.

Ill., Carlyle—SCHOOL—Community Unit School District No. 1, Bd. Educ., Carlyle, voted $975,000 bonds, brick, concrete high school Route 127, ¼ mi. north of here; brick, concrete, elementary school, Boulder Rd. 2 mi. north of Ferrin.

Ill., Hinsdale—SCHOOL—School District 86, Hinsdale plans by Fugard, Burt, Wilkinson & Orth, 520 N. Michigan Ave., Chicago, Zone 11, Hinsdale, Twp. High School addn. $900,000.

Ind., Evansville — MUSEUM — Bd. P. Wks., H. O. Roberts, mayor, City Hall, plans by Ralph Legemen, 10 Chestnut St., city museum, $850,000 CD 1/23/46.

Ind., Rushville—HIGH SCHOOL—Bd. School Trustees, J. E. Light supt. schools, Rushville, plans by McGuire & Shook, 1400-01 Fletcher Trust Bldg., Indianapolis, Zone 4, high school, $600,000.

▲ **Kan., Manhattan**—ANIMAL HUSBANDRY and SERVICE—State, Bd. Regents, Topeka, plans by John Brown, state archt., State House, Topeka, animal husbandry bldg., $1,300,000; exten. service bldg., $695,000, Kansas State College.

▲ **Mich., Allen Park**—SCHOOLS—Allen Park Village, William C. Harris, supt. Schools, 7445 Allen St., brick elementary school, Moore St., $400,000; brick Lindemann School addn., Wick St., $300,000; brick, steel elementary school sect. of Champaign Park, $500,000; brick, steel high school, swimming pool, 2 sect. gymnasium on 62 acre site, Champaign Park, $1,500,000. CD 4/23/51.

▲ **Mich., Flint**—SCHOOLS—City, Robert G. Loeffler, city clk., bond election June 2, high school, West Side, $2,000,000; Zimmerman Elementary School, $500,000; Clark Elementary School, $350,000; 2 story, bsmnt., brick, Pierson Elementary School, $700,000.

▲ **Mich., Rochester**—SCHOOLS—City, Rochester School Dist., Rochester, $2,500,000 bond election June 8, high school for dist. of 8 communities, $1,200,000; Central Elementary School, Hamlin and Addison School addns., $1,000,000. H. E. Beyster & Assoc., Inc., 200 Industrial Trust Bank Bldg., Detroit, archt.

Mo., Riverview Gardens (St. Louis 15, P. O.)—SCHOOL—Riverview Gardens School Dist., 587 Chambers Rd., St. Louis, Zone 15, voted $800,000 bonds Apr. 25, elementary school bldgs. in Glasgow Village, Hathaway Hills and Moline area, etc.

▲ **Mo., St. Louis**—SCHOOL—City, Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., Zone 1, plans by F. Ray Leimkuehler, c/o Bd. Educ., elementary school in M-4 Housing Proj. area near 22 and Bickson Sts.; elementary school in M-5 Housing Proj. area at 18 and Cass Aves. $1,250,000. CD 7/3.

▲ **Mont., Anaconda**—SCHOOL—Deer Lodge Co. School Dist., Anaconda, voted $1,100,000 bonds Apr. 21, high school. CD 12/23/46.

Pa., Knox—HIGH SCHOOL—Keystone Joint Schools, Knox, plans by Raymond Viner Hall, Port Allegany, high school, Beatty St. $650,000.

Pa., Phila.—SCHOOL—Bd. Educ., 21 and Winter Sts., plans by Aaron Colish & Frank E. Hahn, Architects Bldg., Lamberton School addn. $700,000. CD 11/28.

Pa., Port Allegany—HIGH SCHOOL—Port Allegany Area Joint Schools, Port Allegany, plans by Raymond Viner Hall, Port Allegany, Junior-Senior High School. $600,000.

R. I., Pawtucket—SCHOOL—City, Supt. Schools, elementary school, Pine Crest Sect. $500,000.

▲ **Tex., Austin**—ENGINEERING, etc.—University of Texas, University Campus, Admin. Bldg., Austin, plans by Mark Lemmon, consult. archt., 1210½ Main St., Dallas, expansion engineering buildings, $2,000,000; combined ROTC office, classrooms and storage bldg., $400,000; general remodeling of certain older bldgs. (group), $750,000; classroom and office school structure, $950,000; remodeling library, $375,000; business admin. bldg. expansion, $350,000. R. L. White, c/o owner, university archt. CD 11/10.

▲ **Tex., Dallas**—SCHOOLS—Pleasant Grove Independent School Dist., 1316 S. Buckner Blvd., voted bonds Mar. 21, No. 1 Negro Elementary School, $350,000; No. 2, elementary school, $300,000; No. 3, elementary school, $325,000; Senior High School, $550,000; will not construct grade school, $300,000. CD 9/12/51.

▲ **Tex., Waco**—SCHOOLS, etc.—Waco Independent School Dist., Waco, voted bonds Apr. 14, Elementary School No. 1, $550,000; Elementary School No. 2, $650,000; Southside Elementary School, $300,000; Junior High School, $300,000; Westside Elementary School, $325,000; Senior High School, $350,000; school vocational shop for lower and upper grades, $100,000; athletic courts, playgrounds, stadium imprvs. to High and Junior School useage, $75,000. G. R. Olson, Box 27, bd. archt. CD 10/20/49.

Va., Princess Anne—SCHOOLS—Princess Anne Co. School Bd., Princess Anne, $950,000 bond election June 2, 2 elementary schools. Frank W. Cox, c/o owner, supt. Schools.

▲ **Va., Woodstock**—HIGH SCHOOL—Shenandoah Co. Bd. Educ., Woodstock, bond election May 19, 2 consolidated high schools. $2,000,000. CD 3/12/52.

Wis., De Pere—SCHOOLS—State Dpt. P. Wks., State Capitol, Madison, plans by Roger C. Kirchhoff, state archt., Madison, 2 vocational schools, $750,000.

▲ **Ont., Hamilton**—PUBLIC—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by Husband, Robertson & Wallace, 30 Hunter St. W., public bldg. for fed. govt. departments and Unemployment Insurance Comn., Main and Caroline Sts. $3,500,000. CD 1/13/49.

Ont., Ottawa—RECREATION CENTRE—The Civil Service Recreation Assn., (RA) Lisgar St., New Clark Recreation Centre near Dow's Lake, incl. gymnasium, theatre, music rooms, dining room, snack bar, bowling alleys, swimming pool, etc. $800,000.

▲ **Ont., Woodstock**—HOSPITAL—Woodstock Hospital Bd., V. B. King, chn., plans by D. E. Kertland, 34 Summerhill Gardens, Toronto, general hospital addn. $1,000,000. CD 8/14.

Alaska, Anchorage—LIBRARY—City, City Hall, voted bonds, municipal library. $850,000.

COMMERCIAL BUILDINGS

▲ **Ala., Montgomery**—DEPARTMENT STORE—Loveman, Joseph & Loeb, c/o Sherlock, Smith & Adams, archts., 303 Washington Ave., department store, $1,000,000.

▲ **Calif., Buena Park**—DWELLINGS—Volk-McLain 612 S. Flower St., Los Angeles, plans by E. H. Fickett, 5657 Wilshire Blvd., Los Angeles, 180 frame and wood siding dwellings $1,260,000.

▲ **Calif., Hayward**—DEPARTMENT STORE—Graeme MacDonald, 1 Montgomery St., San Francisco, department store, $4,500,000. Emporium-Capwell Co., 835 Market St., San Francisco, lessee.

▲ **Calif., La Habra**—DWELLINGS—Volk-McLain, 612 S. Flower St., Los Angeles, plans by E. H. Fickett, 5657 Wilshire Blvd., Los Angeles, 200 frame, wood siding dwellings, $1,400,000.

▲ **Ill., Chicago**—NURSES SCHOOL, etc.—Alexian Brothers (Hospital), 1200 Beldon St. Plans by Schmidt, Garden & Erikson, 104 S. Michigan Ave., Zone 3, nurses school and residence center, recreation bldg. $1,000,000.

(Continued on page 144)

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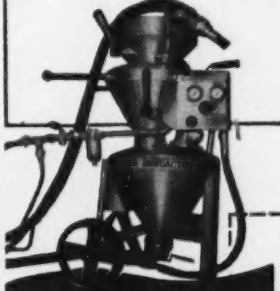

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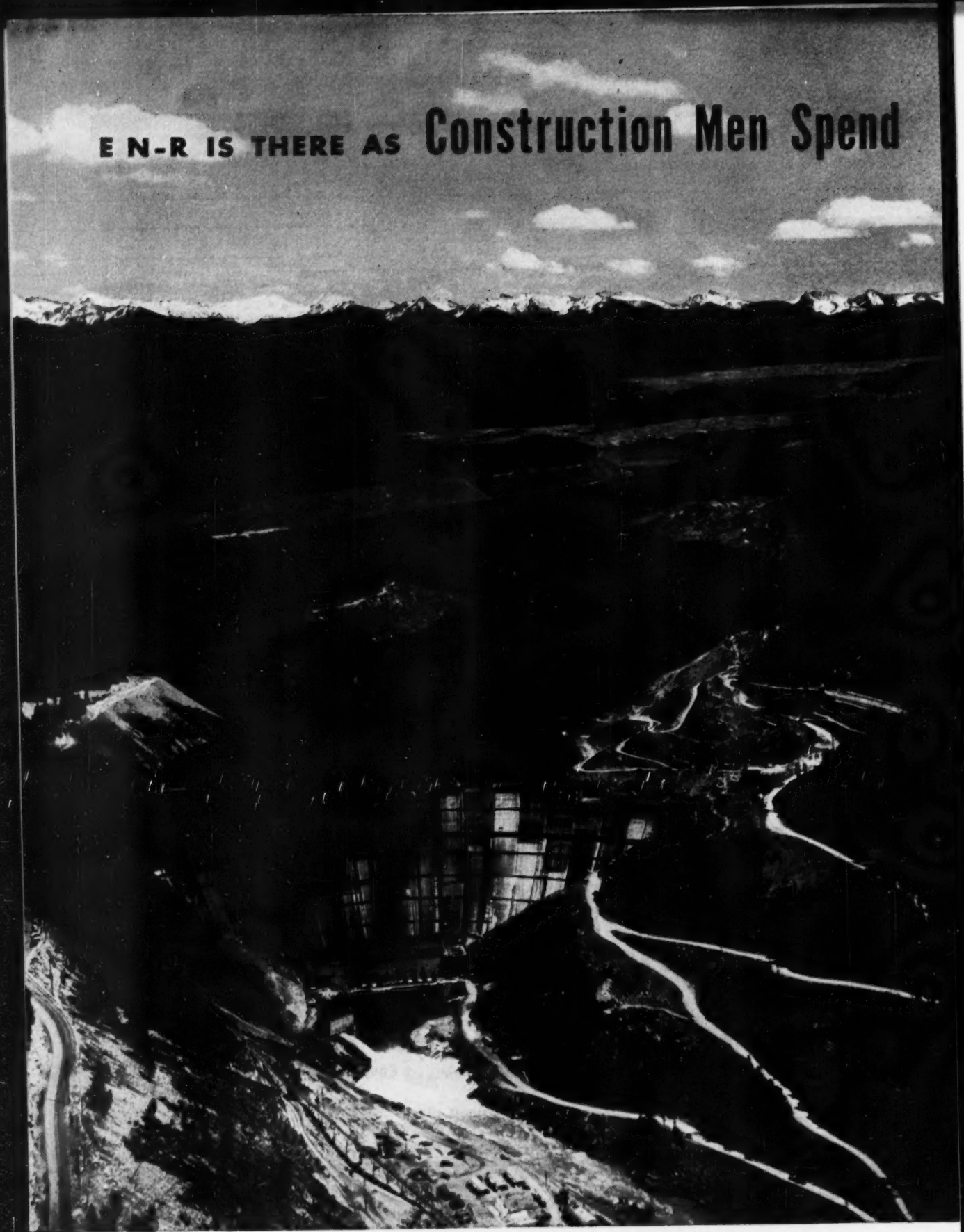

SKY, MOUNTAINS AND CONCRETE at $43,000,000 Hungry Horse Dam, world's fourth largest. The three prime contractors in this joint-venture receive 91 copies of News-Record every week. 280 subscriptions to E N-R go to the Bureau of Reclamation.

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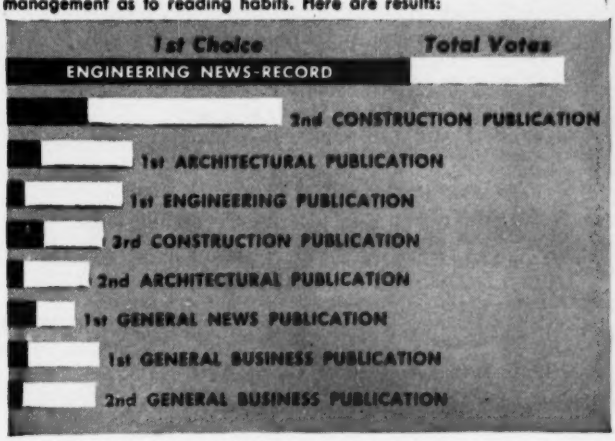


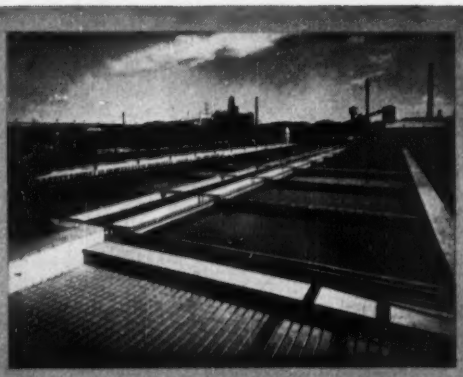
Surveys conducted by more than 30 other important construction firms show same pattern.

GLASS UNDER GLASS at the new Lever Building in New York. Under the glass exterior is cellular glass for insulation. E N-R was there every week during construction. Subscriptions go like this: owner—2; architect—22; consulting engineer—2; contractor—107; electrical contractor—7.

COSTLY CURLICUES. 118-mile New Jersey Turnpike cost almost $2-million per mile. NJTP Authority made a readership survey among the 37 firms who built the high-speed highway—result was News-Record, ten to one, for most useful publication. When contracts were awarded, firms who got the business were already receiving 636 copies of E N-R every week. By the time the road was completed, E N-R was there with 1,007 paid copies weekly.

MASS BUT MODERN HOUSING. Parklabrea in Los Angeles, one of three modern housing developments owned by a major insurance company. In addition to 11 E N-R subscriptions to the contractor, the insurance company gets three copies every week.

4 STEPS TO BETTER WATER



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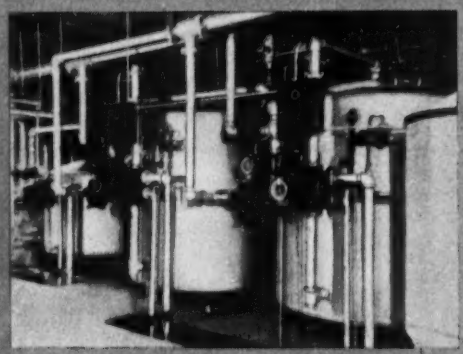

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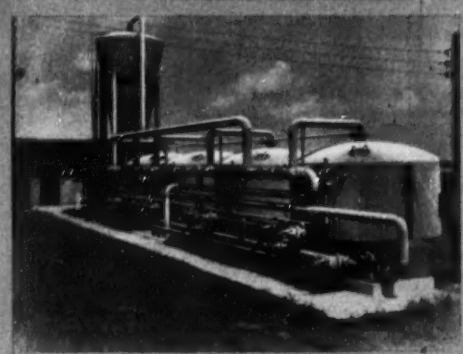

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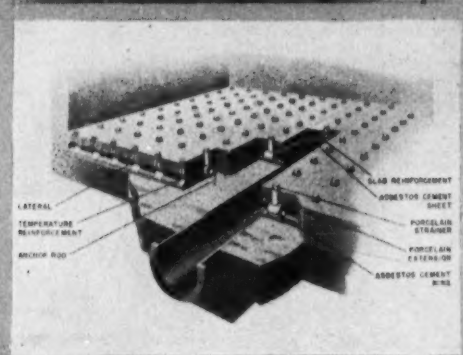

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(Continued from page 137)

Ind., Huntingburg—HOSPITAL—Stork Memorial Hospital, Sister of St. Benedict, Huntingburg, two 2 story, bsmnt., brick hospital wings, $400,000.

Ind., Rochester—HOSPITAL—Woodlawn Hospital, Rochester, plans by Walter Scholer & Assocs., 1114 State St., Lafayette, 2 story, bsmnt., brick hospital addn., $500,000. CD 6/26/47.

Ind., Valparaiso—STUDENT UNION—Valparaiso University, Valparaiso, plans by Michael H. Hare, 123 Broadway, New York, N. Y., 2 story, bsmnt., brick, stone, student union bldg. $650,000. CD 2/24/44.

La., Monroe—DEPARTMENT STORE, etc.—Sears, Roebuck & Co., Ponce de Leon Ave., Atlanta, Ga., plans by H. H. Land, Ouachita National Bank, 75,000 sq. ft. department store and shopping center, $750,000.

N. Y., Brooklyn—APARTMENT—Stylecrest Buildings Corp., 2041 E. 7 St., plans by Seelig & Finkelstein, 153 Pierrepont St., Zone 2, 6 story apartment, 1842 E. 13 St. $900,000.

▲ N. Y., Ithaca—ENGINEERING—Cornell University, Ithaca, School of Electrical Engineering bldg., south end of campus, $1,200,000.

N. Y., Mt. Vernon—APARTMENTS—Edward A. Lashins, Inc., 1 E. Post Rd., White Plains, plans by Henry H. Moger, Jr., 250 Main St., White Plains, 6 story apartment for 48 families, Prospect and Claremont Aves., $350,000; 6 story apartment for 48 families, Prospect and Fulton Aves., $350,000. CD 4/22.

N. Y., New York—APARTMENT—2700 Henry Hudson Parkway Corp., 391 E. 149 St., Zone 55, plans by H. Herbert Lilien, 201 W. 77 St., Zone 23, 6 story apartment, 227 St. between Fairfield Ave. and Henry Hudson Parkway. $700,000.

N. Y., White Plains—STORE—Alexander's Department Stores, Inc., Fordham Rd. and Grand Concourse, New York, Zone 58, 4 story store, on 4-acre site, Post Rd. and So. Broadway, $3,500,000.

▲ O., Columbus—HIGH SCHOOLS—Diocese of Columbus, 198 E. Broad St., 2 high schools, $1,000,000 each; St. Vincent's Orphanage, $400,000.

O., Piketon—HOMES—J. W. Cooper, Piketon, 52 homes. $700,000.

▲ O., Toledo—ACADEMY—Mary Manse College, c/o Mother Vincent DePaul, 2413 Collingwood Ave., Toledo, Zone 10, part 1 story and part 2 story St. Ursuline Academy, Kenwood Blvd., $900,000; Mary Manse College imprvs., incl. chapel, $300,000; main bldg. $400,000; science bldg. $300,000.

▲ Okla., Tulsa — MEDICAL-DENTAL CENTER — Dr. Charles E. McCracken, 1307 S. Main St., and Richard W. Carpenter, 1030 E. 19 St., 4 story medical and dental center, $1,500,000.

Tenn., Knoxville—APARTMENT—J. Leon Montgomery, 916 Henley St., apartment units. $500,000.

Tenn., Memphis—MEDICAL and SURGICAL—Gailor Memorial Psychiatric Hospital, 52 N. Dunlap St., plans by Norton & Rice, Falls Bldg., medical and surgical bldg. $750,000.

▲ Tenn., Memphis—SHOPPING CENTER—Milo Solomito & Joseph Solomito, 3699 S. Gallowy Dr., plans by Northern & Windrom, 236 Court Ave., shopping center, $2,000,000.

▲ Tex., Austin—OFFICE—Lowich Investments, Inc., 1200 S. Ervay St., Dallas, revised plans by Harry L. Spicer & J. W. Bush, 503 Amicable Bldg., Waco, office, $2,000,000. CD 4/15.

Tex., Dallas—COUNTRY CLUB—Columbian Country Club, 9201 Garland Rd., plans by Max Sandfield, 2907 Maple St., main country club and allied bldgs., 326 acre site off Webb Chapel and Belt Line Rds. $790,000.

▲ Tex., Houston—APARTMENT-HOTEL—Melvin A. Silverman, 2504 S. MacGregor St., plans by Lloyd & Morgan, 4605 Montrose Blvd., apartment-hotel. $6,000,000. CD 4/30.

Tex., Houston—OFFICE MERCANTILE—Yerger Hill Interests, c/o Hester & Wise, Niels Esperson Bldg., plans by MacKie & Kamrath, 2713 Ferndale St., 3 story bsmnt. 31,500 sq. ft. masonry, stainlesss steel, etc. office-mercantile, Polk Ave. and Main St. $475,000. Lane Bryant, Inc., lessee.

Va., Norfolk—HOTEL—Cavalier Realty Corp., H. C. Hofheimer, II, 2125 Kimball Terrace, renovation and 40-room addn. to Southland Hotel. $750,000.

▲ Alaska, Fairbanks—HOUSING—Hebb & Narodick, 232 Fourth Ave. N., Seattle, Wash., plans by R. L. Durham & Assoc., 1100 Denny Way, Seattle, Wash., 75 frame duplex housing units in Arctic Park Apartment development. $2,250,000.

Man., Winnipeg—OFFICE—St. Paul Fire & Marine Insurance Co., 402 Paris Bldg., plans by Moody & Moore, 295 Broadway Ave., 2 story, 75x100 ft. office, Osborne St. $500,000.

▲ Que., Montreal—HOSPITAL—B. C. G. Clinic, 2427 Letourneau St., plans by Morin & Cing-Mars 84 W. Notre Dame St., 200-bed hospital, Belanger St. $2,000,000.

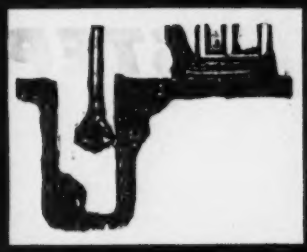
▲ Que., Verdun — HOSPITAL WING — Bd. Governors, Verdun Portstant Hospital, Verdun, plans by McDougall, Smith & Fleming, 1235 McGill College Ave., Montreal, 325-bed hospital wing for tubercularly insane-admission and treatment facilities. $4,500,000. McDougall & Freidman, 1235 McGill College Ave., Montreal, consult. engrs. CD 4/26/50.

Sask., Regina—Y.M.C.A. BLDG.—Young Men's Christian Assn., Regina, new Y.M.C.A. Bldg., Cornwall St. and 12 Ave. $800,000.

INDUSTRIAL BUILDINGS

▲ La., New Orleans—SERVICE STATION—New Orleans Public Service, Inc., 317 Baronne St., electric service station, $9,776,000.

DIFFICULT FOUNDATION WORK



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KOPPERS COMPANY, INC.
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▲ **Mich., Livonia**—PLANT, etc.—Chevrolet Motor Div., General Motors Corp., 3044 W. Grand Blvd., Detroit, plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, brick, steel, concrete spring and bumper mfg. plant, offices, power plant, Eckles and Amrhein Sts. $8,000,000. CD 4/24.

▲ **Mich., Muskegon**—PLANT—Continental Aviation Engineering Corp., subsidiary Continental Motors Corp., 1470 Algonquin St., Detroit, jet engine plant. $1,500,000. CD 4/17/51.

▲ **Mich., Muskegon**—PULP MILL, etc.—S. D. Warren Co., 89 Broad St., Boston, Mass., pulp mill, $7,000,000; masonry paper bleach plant, $3,000,000.

▲ **Miss., Columbus**—PLANT—American Bosch Co., 3664 Main St., Springfield, Mass., plans by Lawrence S. Whitten, Brown-Marx Bldg., Birmingham, Ala., plant. $1,000,000. CD 4/14.

▲ **Mo., St. Louis**—WAREHOUSE, etc.—Scruggs-Vandervoort-Barney, Inc., 915 Olive St., Zone 1, plans by Abbott Merkt & Co., engrs.-archts., 10 E. 40 St., New York, N. Y., 1 story, 121,000 sq. ft. service and warehouse, Oakland Ave. $1,000,000.

▲ **N. C., Aquadale**—PLANT—Southern Lightweight Aggregate Corp., 3011 Dock St., Richmond, Va., plant, $1,000,000.

N. C., Gastonia—FREIGHT TERMINAL—Akers Motor Lines, Gastonia, truck freight terminal addn. $200,000. CD 12/28/51.

▲ **O., Cleveland**—FACTORY—Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., factory to mfg. automobile engines on 140-acre tract adjacent to present Cleveland engine plant and foundry, at Brook Park. $60,000,000, incl. equip. CD 2/2/50.

O., Cleveland—TERMINAL—Pure Oil Co., 35 E. Wacker Dr., Chicago, Ill., petroleum supply terminal with 5 m. g. capacity in valley sect., incl. four storage tanks, terminal office bldg., truck loading rack, near Cuyahoga River.

O., Dayton—WAREHOUSE—Carl C. Shaefer, 950 Calumet Lane, 75x800 ft. concrete block warehouse, along Penn R. R. siding off Wolf Creek Pike, northwest of here, on Willowburn St. $250,000.

Okla., Kendrick—GASOLINE PLANT—Kerr-McGee Co., Kerr-McGee Bldg., Oklahoma City, natural gasoline plant in Kendrick Oil Field. $200,000. J. M. Kerr, c/o owner, engr.

Tenn., Loudon—PLANT—Charles H. Bacon Co., Loudon, plans by J. E. Sirrine Co., 215 Main St., Greenville, S. C. plant addn. $250,000. CD 2/13.

Tenn., Memphis—TERMINAL—Commercial Carriers, Inc., 1056 Arkansas St. and United Transport, Inc., 1101 Arkansas St., plans by Robert Brown & Robert Smith, 81 Madison Bldg., truck freight terminal. $300,000.

Va., Lynchburg—PLANT—Gary Steel Products Corp., c/o Wiley & Wilson, consult. engrs., 908 Peoples Bank Bldg., fabricating plant. $300,000.

W. Va., St. Albans—PLANT—Eastern Mfg. Co., St. Albans, plant. $200,000.

Wis., Pound—FACTORY—Patz Distributing Co., Pound, plans by D. M. Schoepke, 319 3 St., Wausau, 1 story, 112x120 ft., steel and brick factory addn.

▲ **Que., Buckingham**—MINE DEVELOPMENT—Buckingham Asbestos Ltd., c/o L. W. Raiche, 237 Church St., St. Laurent, asbestos mine development, $1,000,000.

Que., Montreal—CELL—Canadair Ltd., Montee St. Laurence, Montreal, plans by Lapointe & Tremblay, 3534 Cote des Neiges Rd., run-up cell and 4 concrete muffler houses, $600,000.

UNCLASSIFIED

Ark., Hot Springs—RACE TRACK IMPRVS.—Oaklawn Jockey Club, c/o Erhart, Eichenbaum & Rauch, archts., Wallace Bldg., Little Rock, race track imprvs. $600,000.

Calif., Alameda—SWIMMING POOLS, etc.—City, City Hall, $600,000 bond election June 2, swimming pools and park imprvs. CD 2/23/45.

Colorado—RURAL DISTRIBUTION LINES—Gunnison County Electric Assoc., Crested Butte, 94 mi. rural distr. line and sys. imprvs., Gunnison Co. $425,000.

Colorado—RURAL DISTRIBUTION LINES—San Miguel Power Assoc., Nucla, 168 mi. rural distr. line and sys. imprvs., San Miguel Co. $285,000.

Fla., De Funiak Springs—NATURAL GAS SYSTEM—City, City Hall, natural gas system, $500,000.

Fla., Fort Walton—NATURAL GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. $500,000.

Fla., Niceville—NATURAL GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. system. $300,000.

Fla., Valparaiso—NATURAL GAS DISTRIBUTION SYSTEM—City, City Hall, natural gas distr. sys. $350,000.

Ga., Cartersville—NATURAL GAS DISTRIBUTION SYSTEM—City, bond election May 19, natural gas system $800,000. CD 4/16.

Illinois—PARK IMPRVS.—State, State Capitol, Springfield, water and sewerage sys. at Dixon Springs State Park, Pope Co. $200,000.

▲ **Ind., Fort Wayne**—RAILWAY TRACK ELEVATION, etc.—Bd. P. Wks., City Hall, Fort Wayne, Bd. Comrs. Allen Co., Court House, Fort Wayne, and New York, Chicago & St. Louis R.R. Co., H. F. Whitmore, ch. engr., Terminal Tower, Cleveland 1, O., railway track elevation and overheads, at Fairfield Ave., Harrison, Calhoun, Clinton, Lafayette, Columbia and Clay Sts. $8,200,000. DeLeuw, Cather & Co., 150 N. Wacker Dr., Chicago, Ill., consult. engrs.

Mich., Birmingham—PARKING FACILITY—Wabeek Jacobson's Corp., Nathan Rosenfeld, pres., 200 Wabeek Bldg., parking facility on 4 or 5 acre site, northwest of here. $439,000.

N. Y., Brooklyn—COMFORT STATION, etc.—Dpt. Parks, Arsenal Bldg., New York, plans by Gustave Chirlian, c/o owner, comfort station and playground, 152-98 Winthrop St. $112,000.

▲ **North Dakota and Minnesota**—OIL PIPE LINE—Standard Oil Co. of Indiana, 910 S. Michigan Ave., Chicago, Ill. approx. 225 mi. oil pipe line from Mandan, N. D. to Moorhead, Minn. $6,000,000.

S. C., Greenville—TELEVISION STATION—Greenville Television Co., Calhoun Tower, Greenville, television station. $177,000. McIntosh & Inglis, Wyatt Bldg., Wash. 5, D. C., consult. engrs.

Tenn., Knoxville—TELEVISION STATION—Television Services of Knoxville, Knoxville, television station. $125,000. George C. Davis, Munsey Bldg., Wash. 4, D. C., consult engr.

Tenn., Memphis—TELEVISION STATION—J. Frank Gallagher, Loren M. Berry & Ronald B. Woodyard, 5 S. Jefferson St., Dayton, O., television station. $200,000. John H. Mullaney, 2002 "P" St. N.W., Wash. 6, D. C., consult. engr.

Tenn., Memphis—TELEVISION STATION—Harding College, WHBQ, Gayoso Hotel, television station. $400,000. McIntosh & Inglis, Wyatt Bldg., Wash. 5, D. C., consult. engrs.

Tenn., Memphis—TELEVISION STATION—KWEM-TV, Inc., 229 W. Broadway, West Memphis, Ark., television station. $200,000. W. J. Holey, 1146 Briarcliff Pl. N.E., Atlanta, Ga., consult. engr.

Tex., Abilene—TELEVISION STATION—Reporter Broadcasting Co. (KRBC) 984 N. 4 St., television station. $170,000. Commercial Radio Equipment Co., 1319 F St. N.W., Wash 4, D. C., consult. engr.

Wash., Everett—PIER—Port of Everett voted bonds, renovate Pier 1, $325,000. R. W. Johnson, Arctic Bldg., Seattle, Zone 4, consult. engr. CD 11/17.

▲ **B. C. Vancouver**—TELEVISION STATION—Canadian Broadcasting Corp., 1425 Dorchester St. W., Montreal, Que., television station. $1,700,000.

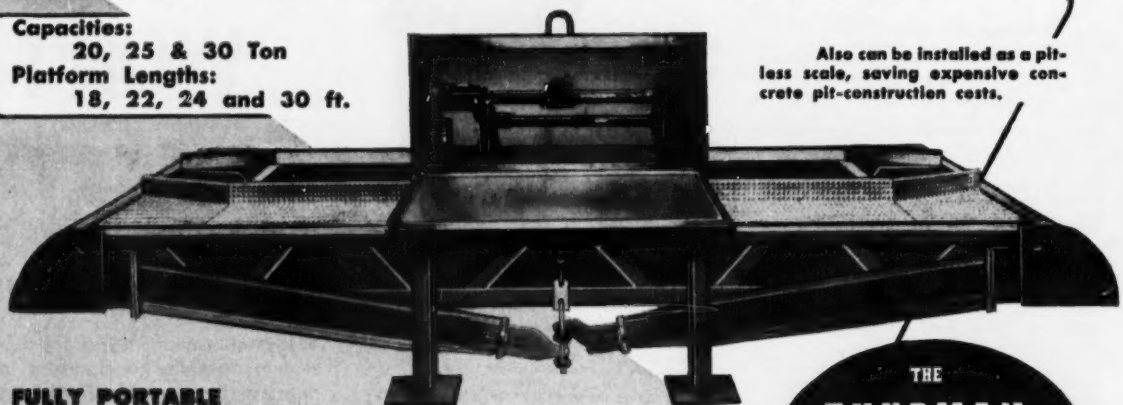
▲ **N. S., Halifax**—TELEVISION STATION—Canadian Broadcasting Corp., 1425 Dorchester St. W., Montreal, Que., new television station. $1,100,000.

Ont., Ottawa—TELEVISION STATION—Canadian Broadcasting Corp., 1425 Dorchester St. W., Montreal, Que., television station. $970,000. CD 12/20/51.

MOVE IT TO THE JOB

Capacities:
20, 25 & 30 Ton
Platform Lengths:
18, 22, 24 and 30 ft.

Also can be installed as a pitless scale, saving expensive concrete pit-construction costs.



FULLY PORTABLE

This scale can be moved from job to job as a unit merely by removing the six bolts which hold the side levers in place. The assembled scale can then be lifted and loaded on a truck for transporting. Once positioned, it can be ready for use in minutes.

ACCURATE and PRECISE

Perfectly balanced for lifetime accuracy. Wide steel bases, at both ends, support scale, therefore require no concrete footings.

Easy-to-read weighbeam is chrome-plated. Other vital parts are electro-plated against corrosion.

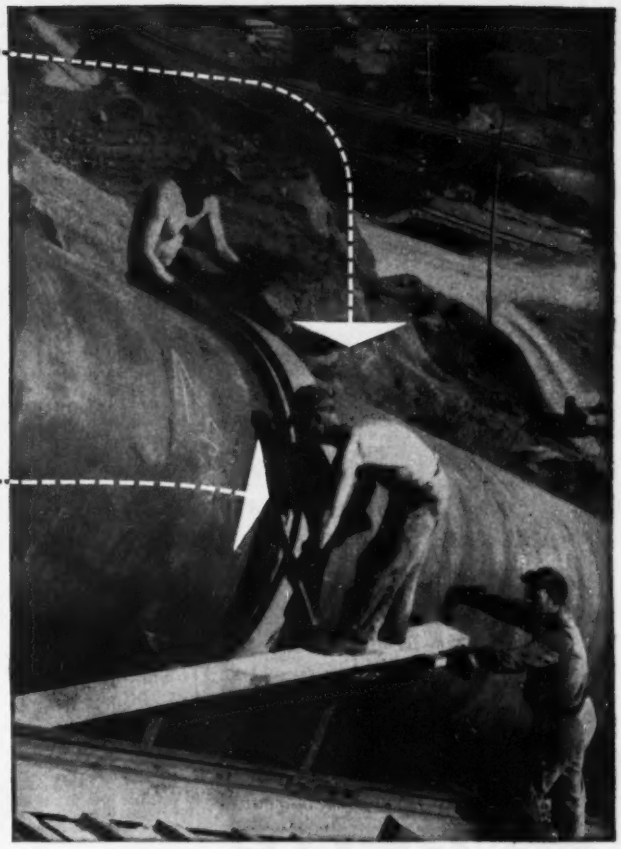
THE THURMAN PORTABLE TRUCK SCALE

Est. 1918

THURMAN MACHINE CO. SCALE DIVISION 156 North Fifth Street Columbus, Ohio Dept. B

from penstocks to water mains . . .

Dresser Couplings absorb pipe movement, prevent built-up stresses, speed construction

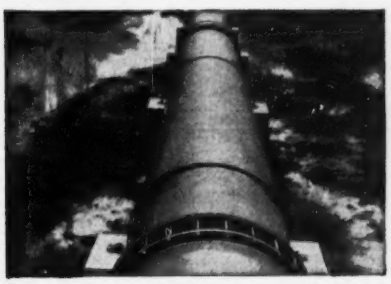


75" penstock of the British Columbia Electric Co. One of three installed at Bridge River, using Dresser Couplings specially designed for the job. With Dressers, construction time was cut from months to weeks, due to simplicity of installation. And penstocks have remained bottle-tight under very high pressures, despite severe weather conditions.

On either exposed or buried lines, from ⅜" to 72" diameter or larger, your best protection against vibration or movement stresses is a Dresser Coupling. Each of these "flexible-tight" joints takes up to ½" expansion-contraction movement . . . up to 4° deflection . . . cushions your line at every joint. Specially compounded rubber gaskets soak up vibration like a sponge.

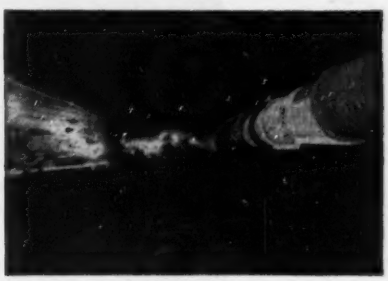
Installation of Dresser Couplings is simplicity itself. Any workman can install them; the only tool needed is a wrench. And fast? On a typical 48" water line, 40 lengths of pipe were laid in one 8-hour day using a two-man joining crew.

Performance on half a million miles of pipe proves Dresser dependability.



Over swamps and marshy ground, where earth movement must be considered, Dresser Couplings keep Savannah's, new 14-mile, 42" water supply artery completely tight.

In busy streets of Stoneham, Mass., simplicity and ease of installing Dresser Couplings gets the job finished sooner. Dressers absorb traffic vibrations.



Under New York Harbor, construction of the Brooklyn Battery tunnel was simplified by using Dresser Couplings to join air and water supply lines.

DRESSER

"FLEXIBLE-TIGHT"

COUPLINGS

Dresser Manufacturing Division, 319 Fisher Ave., Bradford, Pa. (One of the Dresser Industries.)

GET THESE FOLDERS NOW!

Interesting engineering data on varied types of lines installed with Dresser Couplings. This is file material.

DRESSER MANUFACTURING DIVISION
319 Fisher Ave., Bradford, Pa.

Gentlemen: Please send me your "Report of Dresser Coupled Lines," your "Bridge River" reprint, and "Style 38" catalog.

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Firm_____
Address_____
City_____ Zone_____ State_____

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REINFORCING BARS and accessories
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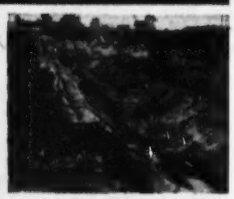
WET JOBS

Whether it's

HEAVY CONSTRUCTION



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or any other type of wet work

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Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

UNIT PRICES

Coastal road, Mississippi

All nine bids received by the Mississippi highway department for work on highway, U. S. 90, fell below the $1,302,017 estimate by engineer, G. W. Tullos. Bidding was close with the low bid 12% below the estimate and the high bid less than 1% under the engineer's appraisal.

Approximately six miles between Bay St. Louis and Biloxi are to be graded, drained and paved with eight inches of reinforced cement concrete to form a four-lane divided highway with 12-ft lanes. Special design curb inlets are employed to handle surface drainage on the roadway which ranges from approximately 0.2% to 1.0% gradient. Parking bays are provided to facilitate tourist employment of coastal scenery.

Minimum wage rates on the 300 working-day job are: skilled labor, $1.00 per hr; semi-skilled labor, $0.75 per hr; and common labor, $0.75 per hr. Bidders include:

1C	Bower & Johnson, Jackson, Tenn.	$1,143,934
2	Clark Bros. Co., Jackson, Miss.	1,198,339
9	Hyde Constr. Co., Jackson, Miss.	1,301,910
EE	G. W. Tullos, Gulfport, Miss.	1,302,017

Bids: 1-27-53 Item	Unit	Quantity	Unit Prices 1 C	2
Clearing & grubbing	ls	1	$11,400	$15,000
Remove asph pvmnt, curb, & gutter	sy	51,555	0.28	0.44
Unclassified exc	cy	51,695	0.50	0.47
Unclassified exc (borrow)	cy	15,161	0.55	0.30
Haul of uncl exc (special)	sta	75,854	0.05	0.05
Selected material	cy	30,793	1.00	0.70
Water	mgal	1,386	2.50	2.50
Reinf cmt conc pvmnt				
8" uniform	sy	192,728	3.97	4.14
6" uniform	sy	14,041	3.72	4.09
Expansion joints	lf	16,600	0.65	0.85
Class "B" conc	cy	545.67	113.00	97.50
Reinforcing steel	lb	50,866	0.1325	0.11
Pipe culvert, 12", alt no 1	lf	542	3.65	3.00
12", alternate no 2	lf	542		
15", alternate no 1	lf	6,141	4.35	3.30
15", alternate no 2	lf	6,141		
18", alternate no 1	lf	3,998	5.25	4.50
18" alternate no 2	lf	3,998		
21", alternate no 1	lf	156	6.15	5.25
21", alternate no 2	lf	156		
24", alternate no 1	lf	213	7.00	6.50
24", alternate no 2	lf	213		
27", alternate no 1	lf	144	8.65	8.50
27", alternate no 2	lf	144		
30", alternate no 1	lf	168	10.25	10.00
30", alternate no 2	lf	168		
36", alternate no 1	lf	212	13.50	12.50
36", alternate no 2	lf	212		
Pipe sewer, 12", alt no 1	lf	320	2.70	2.50
12", alternate no 2	lf	320		
15", alternate no 1	lf	2,103	3.70	2.75
15", alternate no 2	lf	2,103		
18", alternate no 1	lf	889	4.35	3.65
18", alternate no 2	lf	889		
21", alternate no 1	lf	47	5.35	5.50
21", alternate no 2	lf	47		
24", alternate no 1	lf	39	6.00	7.50
24", alternate no 2	lf	39		
27", alternate no 1	lf	20	9.00	9.00
27", alternate no 2	lf	20		
30", alternate no 1	lf	16	9.25	10.00
30", alternate no 2	lf	16		
Pipe removed, all sizes	lf	8,011	0.33	0.75
Castings	lb	16,133	0.13	0.10
Gratings	lb	823	0.55	0.40
Conc curb (integral cycloid)	lf	127,841	0.25	0.55
Conc sidewalk	sy	333	4.50	3.00
Conc driveways	sy	2,522	5.40	4.50
Right-of-way markers	ea	149	6.00	4.50
Agricultural limestone	t	92.4	35.00	40.00
Commercial fertilizers	t	45.5	25.00	25.00
Seeding (white dutch clover)	sy	219,956	0.06	0.06
Sprigging	sy	3,794	0.75	0.80
Solid sodding	sy	12	90.00	75.00
Tree well masonry	cy			

Water & sewage works, Texas

Contract for its $30 thousand sewage treatment plant was awarded by the city of Copperas Cove, Texas to the second low bidder. The lowest of seven bidders, Mid-West Contracting Co,, Dallas failed to sign supporting papers and was disqualified.

The $131 thousand contract for drilling and developing a water supply well; installing water lines; constructing a 250,000 gallon ground storage reservoir and installing sanitary sewer collecting lines went to Roger Smith, Waco, Texas, lowest of nine bidders.

Wages prevailing in the area are: electrical workers, $2.75 per hr; carpenters, $2.49 per hr; and common laborers, $1.35 per hr. Reaves & Gregory, Fort Worth, Texas are the engineers. Bidders include:

Water & sewer lines

1C	Roger Smith, Waco, Texas	$131,418
2	Pelphrey & Basham, Forth Worth, Texas	134,204
9	George Consolidated, Houston, Texas	166,736

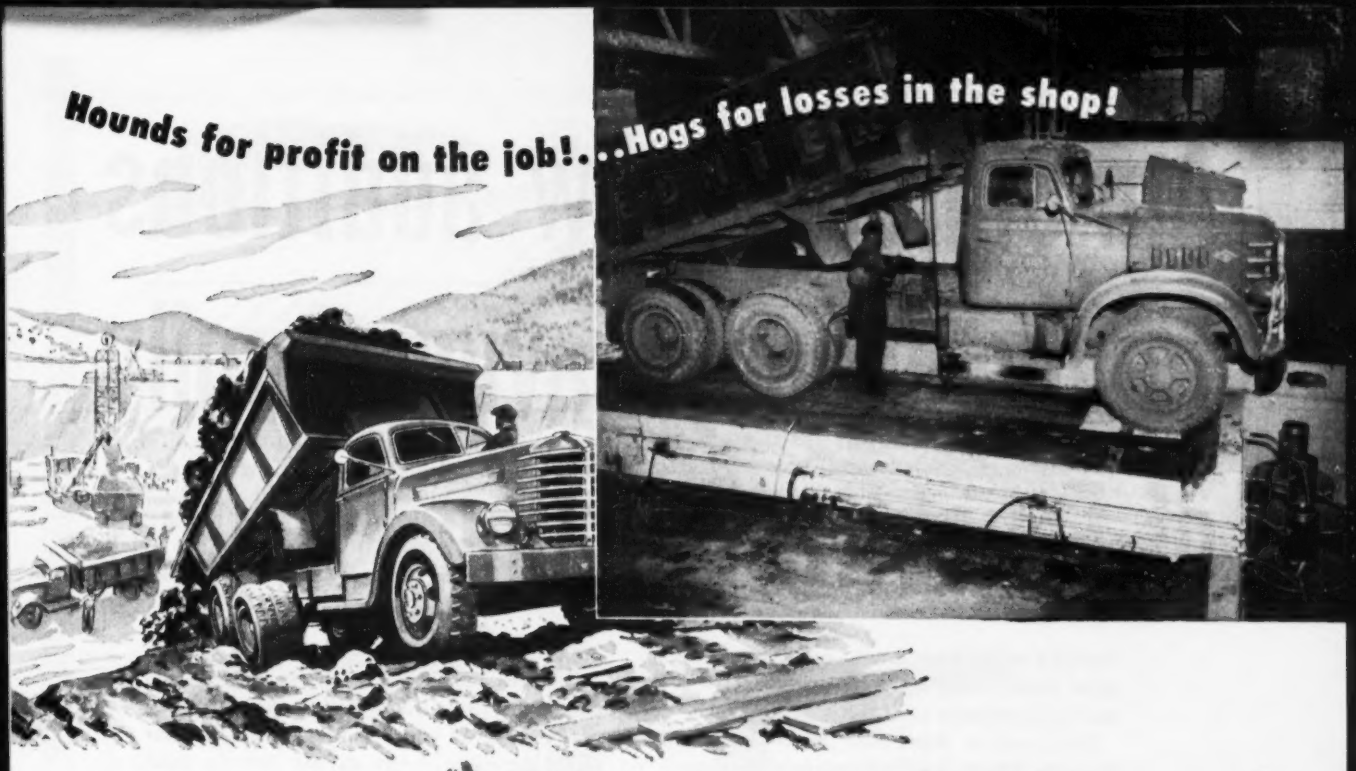
Bids: 1-29-53 Item	Unit	Quantity	Unit Prices 1 C	2
Masonry pump house	ls	1	$8,094	$5,800
Pump, piping & controls	ls	1	7,336	6,492
Pumping plant, electrical	ls	1	4,250	3,791
Water storage reservoir	ls	1	15,162	14,550
Sewer trench, 0'-8'	lf	36,304	0.27	0.36
8'-8'	lf	8,000	0.50	0.42
8'-10'	lf	2,118	1.00	0.48
10'-12'	lf	450	1.62	0.66
Boring for crossing	lf	168	6.25	7.20
VC or con sewer pipe, 6"	lf	22,470	0.71	0.77
8"	lf	11,890	0.84	1.03
10"	lf	11,496	1.22	1.43
12"	lf	1,000	1.39	1.63
CI sewer pipe, 10"	lf	184	4.53	5.40
18" CGM pipe, 14 gauge	lf	168	3.00	12.00
4" CI sewer force main	lf	2,135	1.68	1.86
Sewer force main fittings	lb	300	0.23	0.22
Standard MH (5' depth)	ea	104	106.50	102.00
Additional depth for MH	ft	76	16.50	14.00
Cleanouts	ea	15	28.00	27.60
Manhole drops	ea	7	20.00	13.20
Deep-cut service connec	ea	21	10.00	12.00
Remove & salvage 2" water pipe	lf	1,180	0.40	0.30
Relaying salvaged 2" water pipe	lf	685	0.60	0.30
4" CI water pipe, in place	lf	1,750	1.63	1.86
6"	lf	1,250	2.39	2.58
3-way fire hydrants	ea	1	205.50	177.00
Gate valves and box, 2"	ea	1	53.50	38.40
4"	ea	1	65.00	50.00
6"	ea	1	93.00	62.90
CI fittings in place	lb	800	0.26	0.22
Wet connection, 6" pipe	ea	1	100.00	100.00
Sewage lift station, no 1	ls	1	5,839	5,300
Sewage lift station, no 2	ls	1	5,721	4,300
Class "A" concrete	cy	2	60.00	50.00
Class "B" concrete	cy	6	50.00	30.00

Sewage treatment plant

1	Mid-West contr. Co., Dallas, Texas	$28,600*
2C	Steve Williams Contr. Co., Victoria, Texas	30,072
7	Roger Smith, Waco, Texas	38,444

Bids: 1-29-53 Item	Unit	Quantity	Unit Prices 1	2 C
Imhoff tank	ls	1	$14,466	$17,789
Bar screen & parshall flume	ls	1	750.00	258.45
Sewage lagoons	ls	1	2,538	2,000
Sludge drying beds	ls	1	2,397	2,000
Chlorinator & tool house	ls	1	652.70	800.00
Sewage chlorinator	ls	1	718.58	450.00
Portable diaphram pump	ls	1	805.20	575.00
Recirculation pump & piping	ls	1	1,830	800.00
Plant piping & valves	ls	1	1,129	1,000
Sewage plant access road	ls	1	1,419	400.00
Sewage plant site grading	ls	1	799.10	400.00
Sewage plant site fencing	ls	1	1,096	3,600

* Disqualified (supporting papers not signed)



Alemite "Friction Fighters"

speed lubrication of Edmier trucks in the shop ...save hours on the job!

Time is money when these big babies lie around the shop – and even more costly is a needless breakdown in the field. Avoid both kinds of expensive down-time by getting rid of out-of-date lubrication methods.

That's what the Edmier Company of Chicago did when they installed time-saving Alemite equipment in the central shop. Keeping a fleet of 155 dump trucks, tractors, graders, loaders and motorized equipment on the job is no cinch. But with thorough Alemite lubrication a *must* on every work sheet – down-time is slashed to the bone!

Edmier, like countless other successful construction firms, found that with Alemite "Friction Fighters" on the job, they save THREE ways!

1. Save Time! Equipment is in and out in a hurry, efficiently protected, back on the job.

2. Save Money! By cutting lubrication down-time you increase output of *both* men and machines – slashing operating costs!

3. Save Equipment! By greatly reducing the chance of bearing failure – by keeping rigs running longer.

for high pressure lubrication anywhere in the shop . . .

takes lubrication right to the machine!

This portable, high-pressure lubricator develops up to 5,000 lbs. pressure. Exclusive construction provides positive delivery even with heaviest greases. Large rubber-tired wheels plus compact design make it highly maneuverable. Travels easily over rough floors and into cramped areas. 40 lbs. capacity, serves many bearings without refilling. It's Alemite Model 6288, "Rockcrusher."

On the toughest jobs . . . Alemite lubrication protects expensive equipment, even where grit and dirt threaten bearings at every turn. Whatever your lubrication problem there is Alemite lubrication equipment to meet it. Write today. Find out how Alemite "Friction Fighters" can save your time – money – and machines!

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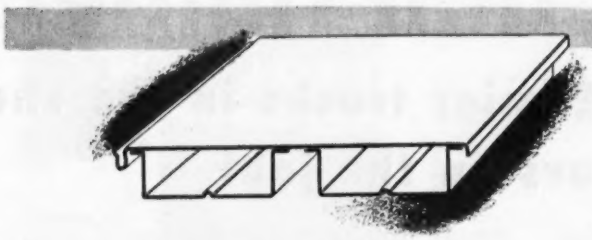
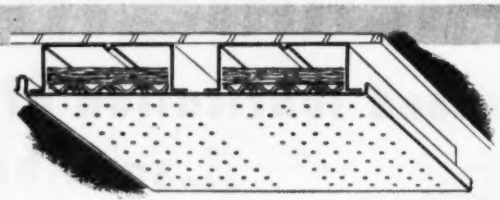
Fenestra Engineers are ready to give you thoroughly tested data on all of these products. Please call your local Fenestra Representative or write direct to the Detroit Steel Products Company, ER-5, 2286 East Grand Blvd., Detroit 11, Michigan. *Trademark



Fenestra's New "D" Panels for Floor, Ceiling, Roof

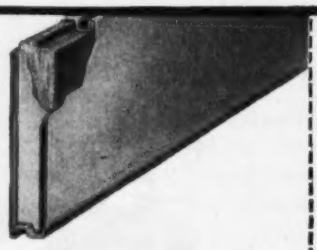
These rugged, rigid, long-span metal panels interlock quickly and easily to form subfloor, or combination ceiling and roof. They are easily arc welded to supporting structural steel. Wires, etc., can be run conveniently through the box beams. Large pipes and ducts can go between the cells. Panels are 24 inches wide, 1½ inches deep, up to 33 feet long.



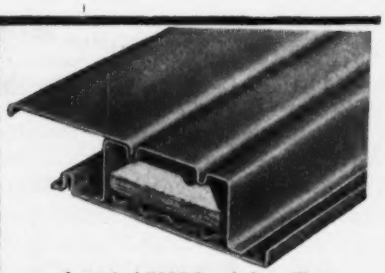
Fenestra's New "D" Panel Acoustical Ceiling

These panels are available with the flat, smooth side of the box beams perforated and with sound insulation material inside the box beam. Placed flat side down, the panels interlock to give you a beautiful finished ceiling. It's structural material and finished ceiling *in one* compact package. Fire-safe, maintenance-free. Same dimensions as "D" Panels for floors.

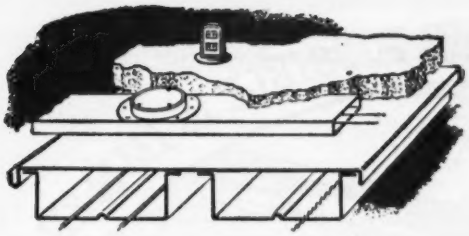
Add the new panel products, shown above, to this old, established family. Here is real latitude for architectural design.



"C" Insulated Wall Panels. Width 16". Depth is 3", installed horizontally or vertically.

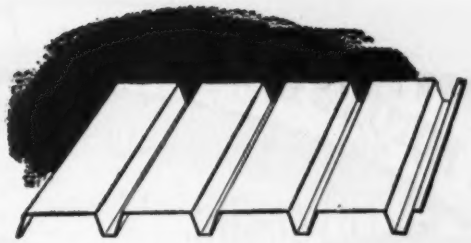


Acoustical "AD" Panels for ceiling-silencer-roof. Width 16". Depths to 7½".



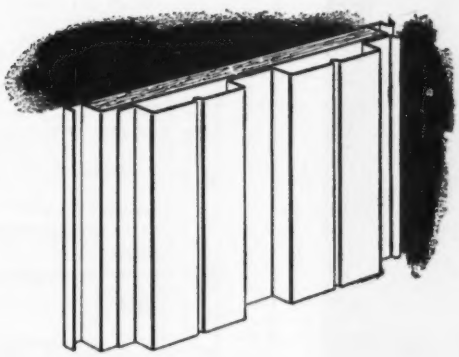
New Fenestra-Nepco "D" Panel Electrifloor

Here is almost unlimited electrical availability for the life of a building. Panel cells are 12″ on center, a 27″ duct area for the 3″-deep panel. This is adequate for all cables, including coaxial. And for a two-duct system, outlets can be spaced 6″ apart.



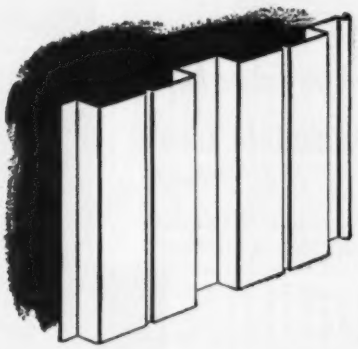
New Fenestra Econorib for Roofs

Here is 18 and 20 gage, 1½″ deep roof deck with a full ½″ rib base for purlin contact when you weld the deck down. 24 inches wide for economy of handling and for increased strength. This balanced design combines economy and strength to the "nth" degree.



Fenestra's New Fluted Wall Panels

These 24″-wide insulated wall panels are available in galvanized steel, painted steel, aluminum or stainless steel—in lengths required by job conditions. The double 1½″-deep hat sections have stiffening ribs for great strength and good architectural effect. Interlocking, telescoping ends, eliminate intermediate flashings. Insulated with 1½″-thick glass fiber for a better U value than a 16″-thick brick wall! Quickly installed inside-outside finished wall in one package.

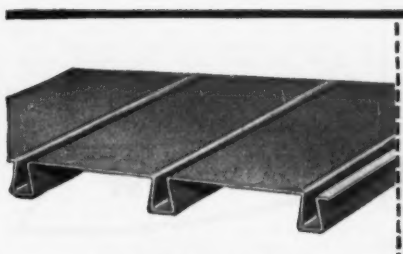


Fenestra's New Uninsulated Siding

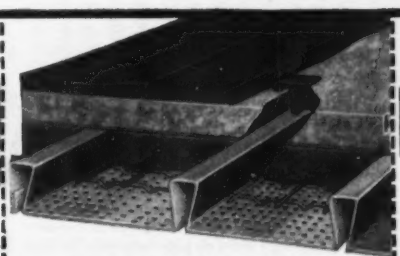
An architecturally attractive, economical siding for use where high insulating value is not necessary. Available in 18 gage steel or 16 gage B&S aluminum. Quickly, easily installed. Fire-safe. 24 inches wide, 1½″ deep.

Be sure to see the Fenestra exhibit at the A.I.A. Convention in Seattle, June 16-19

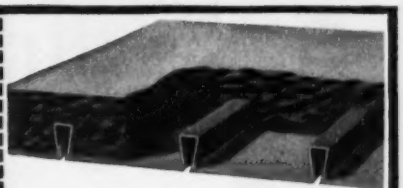
Fenestra
METAL BUILDING PANELS



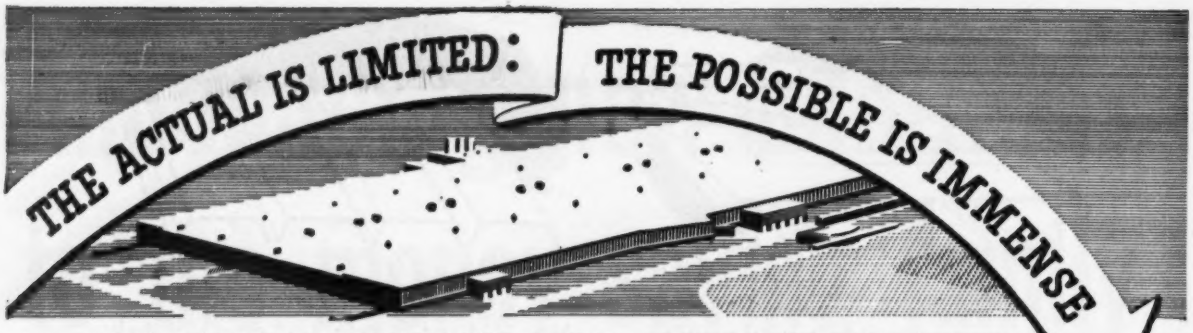
Holorib Roof Deck. 18″ wide—depth 1½″—lengths up to 24′.



Acoustical Holorib for acoustical-structural roof. Width 18″. Depth 1½″.



Holorib Reinforcing Floor Forms. 18″ wide—lengths up to 24′. Upturned pyramidal ribs reinforce concrete slab.



NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

© LE Co. 1953

WELDED DESIGN CUTS STEEL 46%

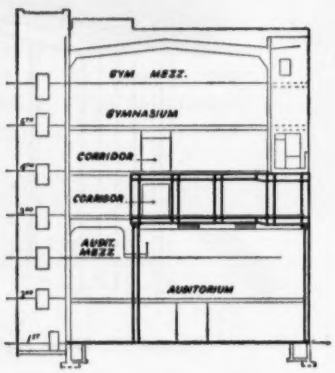


Fig. 1. Diagonal-free trusses *on 7 story structure for the Flatbush Jewish Center, Brooklyn. Trusses are pre-fabricated by welding with joints butt welded to develop full continuity. Weight is 10¾ tons compared to 20 tons for conventional design . . . saving 46% on steel.*

AND CUTS COST 50%

HERE'S HOW

WELDING SIMPLIFIES DESIGN...speeds construction

By **Raphael H. Courland,**
Civil Engineer, A.S.C.E.
New York City

A SAVING of 46% in steel has been effected by shop welding vierendeel trusses used in this 7 story framework. Fabricating has been done faster and for less cost than would have been possible had conventional floor girders been used in spanning the 41' 8" over the second floor auditorium.

Each story high truss uses 10¾ tons of steel at $207 per ton, costs $2200 erected in place. Had conventional design been used, 20 tons of steel would have been required costing $4100, almost twice as much.

The trusses are shop fabricated at low cost by welding standard rolled sections. Top and bottom chords are continuous in design with 11½" vertical members butt welded between chords.

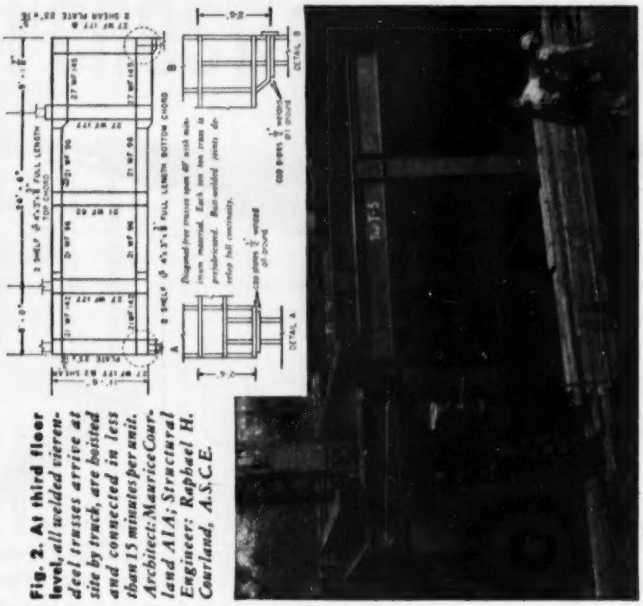


Fig. 2. At third floor level, *all welded vierendeel trusses arrive at site by truck, are bolted and connected in less than 15 minutes per unit. Architect: Maurice Courland A.I.A.; Structural Engineer: Raphael H. Courland, A.S.C.E.*

Studies in Structural Arc Welding free on request.
Designers and Engineers write on your letterhead to Dept. 2304.

THE LINCOLN ELECTRIC COMPANY

CLEVELAND 17, OHIO

THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
May 19 Massachusetts

BIDS ASKED—BUILDINGS

Mass., Wilmington—SCHOOL—B.A. 5/28—Town, Supt. Schools, 159 Church St., elementary school, Wildwood St. $546,000. Plans deposit $50, refundable. Thomas Hixon Co., 1150 Commonwealth Ave., Allston, engr.-archt. CD 4/20, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

CONNECTICUT—State Hy. Dpt., State Hy. Office Bldg., Hartford,
S & M. Constr. Co., 30 Salmon St., Providence, R. I., CA, $782,945, 12,555 lin. ft. bit. macad. pavement on relocation of Route 8 and rein.-con. box culvert, Colebrook. Bids Mar. 30, awarded Apr. 20. CD 4/8, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 21 New Jersey — May 28 New York
STREETS AND ROADS
May 21, 28 New Jersey — May 22, June 5 Pennsylvania
May 28 New York

BIDS ASKED—BUILDINGS

▲ **Md., Baltimore**—HOUSING—B.A. 6/4—Baltimore Housing Auth., 709 E. Eager St., Lafayette Courts, Proj. MD 2-15, Fayette Street Housing, incl. 816 units, six 11 story, ten 3 story, seven 2 story, brick, concrete, block, steel, $8,000,000. Plans deposit $100, Fisher, Williams, Nes & Campbell, 1020 St. Paul St., archts. Van Rensselaer Saxe, 1701 St. Paul St., struct. engr. Egli & Gompf, 1019 N. Calvert St., mech. engrs. CD 9/6/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Tufano Contg. Corp., 32-17 Lawrence St., Flushing, N. Y. LB $764,486. Contr. NYA 290,001 foundations, utilities, paving, hangar No. 7, New York International Airport, IDLEWILD, N. Y. Port of New York Auth., 111 8 Ave., New York 11, N. Y. Bids Apr. 28. CD 4/17.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton,
S. J. Grove & Sons, Co., P. O. Box 85, Woodbridge, N. J. LB, $1,146,067, Contract 96, grading, drainage 11 mi. Garden State Parkway from Westecunk Creek to Oyster Creek, Ocean Co. Bids May 4. CD 4/14.

BUILDINGS

LOW BIDS AND CONTRACTS

C. Rolland Oswald, 21 John St., Schenectady, N. Y. CA $788,576. SCHOOL, COLONIE, N. Y. North Colonie Central School Dist., Latham, N. Y. Awarded Apr. 23. CD 3/10, under LB.

▲ **Matthew L. Carroll Inc.,** 101 Park Ave., New York 17, N. Y. CA $1,365,000. SCHOOL, WARSAW, N. Y. Bd. Educ. of Central School Dist. 1 of Towns of Warsaw, Orangeville, Middlebury, Wethersfield and Gainesville, School Bldg., Warsaw, N. Y. Bids Apr. 16. CD 3/20.

▲ † **Tandy & Allen Constr. Co.,** Hillsdale Ave., Hillsdale, N. J., CA, $6,427,476. Signal Corps Engineering LABORATORY (research and development) Serial No. ENG-30-075-53-262, Phase II, FORT MONMOUTH, N. J. U. S. Eng., 80 Lafayette St., New York, 13, N. Y. Bids Mar. 17. CD 2/18.

Burnley Constr. Co., 132 Garrett Rd., Upper Darby, Pa. Separate Contracts, $640,000. RESIDENTIAL DEVELOPMENT, Powell Lane and Maple Hill Rd., HAVERTOWN, PA.

▲ **C. F. Braun & Co.,** 1100 S. Fremont St., Alhambra, Calif., CA, $14,000,000, catalytic reforming UNIT, MARCUS HOOK, PA. Sinclair Refining Co., 600 Fifth Ave., New York, N. Y.

John A. Robbins Co., Inc., 10 S. 18 St., Phila., Pa. CA. $500,000. PARKING GARAGE. PHILA., PA. Cherry Garage Corp., 1320 Cherry St., Phila., Pa. Bids Apr. 23. CD 4/22.

Gowan-Williams Corp., 8501 Temple Rd., Phila., Pa., Separate Contracts, $560,000. RESIDENTIAL DEVELOPMENT, Michener St. and Temple Rd., PHILA., PA.

▲ **Alvin Aubinoe, Inc.,** 1515 19 St. N. W., Wash., D. C. Owner Builds. $10,000,000. PARKING-SHOPPING CENTER Wildwood Manor, Old Georgetown Rd. and Grosvnor Lane, BETHESDA, MD. (Correction-status). CD 5/6 under CA.

Construction Service Co., 1322 N. Monroe St., Baltimore, Md. Owner Builds. $500,000. thirty-two 2 story, brick, block houses, Engleside Ave., CATONSVILLE, MD.

▲ **Victor Beauchamp,** 6837 Fourth St. N. W., Wash., D. C. LB $2,178,000. Cherry Hill Junior-Senior High SCHOOL, Hyattsville, UPPER MARLBORO, MD Prince Georges Co. Bd. Educ., Upper Marlboro, Md. Bids May 5. CD 4/20.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 19 South Carolina — May 20 Louisiana
May 22 Kentucky
STREETS AND ROADS
May 19 South Carolina — May 20 Louisiana
May 22 Kentucky

BIDS ASKED—BUILDINGS

N. C., Charlotte—SCHOOL—B.A. 5/28—City, Senior High School, $700,000. Plans deposit $50, Graves & Toy, Piedmond Bldg., archts. CD 10/9/50.

N. C., Salisbury—HOUSING—B.A. 6/9—Salisbury Housing Auth., Salisbury, housing, Proj. NC 16-2, $600,000. Plans deposit $50, Chas. W. Connelly, 1201 Elizabeth Ave., Charlotte, archt. CD 9/26/50.

SOON LETS CONTRACT—BUILDINGS

▲ **Fla., Coral Gables**—ADMINISTRATION—University of Miami, 1200 Campo Sano Ave., soon lets contract, administration bldg. $1,000,000. Watson & Deutschman, Chamber of Commerce Bldg., Miami, archts. CD 5/4.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John McShane, Inc.,** 1501 N. Arlington Ridge Rd., Arlington, Va. CA $25,000,000. APARTMENT DEVELOPMENT, incl. four 9 floor bldgs., 1,679 apartment units and shopping center, Arlington Ridge Rd., Wilson and Lee Blvd., ARLINGTON, VA. Arlington Towers Corp., 16 and North Arlington Ridge Rd., Arlington, Va. G. V. Stone, Wire Bldg., and D. H. Drayer, 6280 Ridge Dr. N.W., Wash., D. C., archts. CD 2/16/51.

Kuhn Constr. Co., Inc., Kanawha Valley Bldg., Charleston, W. Va., LB, $700,864, Contract 16, two ventilation bldgs., installing ventilation equip., constr. service bldg., paving outside of buildings misc. construction for vehicle tunnel, Kanawha Co., WEST VIRGINIA, West Virginia Turnpike Comn., 1340 Wilson St., Charleston 5, W. Va. Bids May 5. CD 4/8.

▲ **New River Building Co.,** Jacksonville, N. C. Owner Builds. $2,000,000. 200 RESIDENCES, JACKSONVILLE, N. C.

▲ **Pearce Development Co.,** 1201 Kings Ave., Jacksonville, Fla., Owner Builds, $4,000,000. 650 RESIDENCES, JACKSONVILLE, FLA.

▲† **Bruce Constr. Corp. & Miami Station, Inc.,** 1118 N.E. 2 Ave., Miami, Fla., LB, $3,358,961 Item 1, addnl. buildings, utilities Veterans Administration Hospital, LAKE CITY, FLA. Veterans Admin., Munitions Bldg., Wash., D. C. Bids May 5. CD 2/20.

Ray Evans, c/o Geo. F. Mahoney, archt., 1340 Monroe St., Memphis, Tenn. Owner Builds. $800,000. 83 RESIDENCES, FRAYSER, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 19 Indiana — May 26 Wisconsin
STREETS AND ROADS
May 26 Wisconsin — June 2 Ohio

BIDS ASKED—BUILDINGS

▲ **Mich., Port Huron**—HOSPITAL—B.A. 6/2—At office Wm. R. Walsh, 307 Michigan Bank Bldg., 3 story, brick, steel, concrete hospital, for Sisters of Mercy Province of Detroit Inc., 8200 W. Outer Dr., Detroit, Mich., $1,600,000. Plans deposit $50 refundable Victor J. Basso, 18326 Woodward St., Detroit, Mich., archt. CD 12/29/50.

▲ **Mich., Flint**—HOSPITAL—B.A. 6/9—City, City Comn., 11 story brick, steel, concrete Hurley Hospital, Incl. 3 story wing addns. $3,000,000. Fugard Burt Wilkinson & Orth, 520 N. Michigan Ave., Chicago, Ill., archts. CD 4/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Smith & Johnson, Inc.,** 1799 Kentucky Ave., Indianapolis, Ind., CA, $1,812,000 steel, concrete bridge over Wabash River between Illinois and Indiana, ST. FRANCISVILLE, ILL. City Council St. Francisville, Ill. (Former 1959 contract cancelled). CD 5/6/49, under CA.

WISCONSIN—State Hy Comn., State Office Bldg., Madison:
E. & C. Company, 819 E. Burleigh St., Milwaukee 12, Wis., CA, $801,312, c.conc. 8.594 mi. Contract 1, Waukesha Co. Line—S.T.H. 60, U.S.H. 41-West Bend and Slinger—U.S.H. 41 Roads, U.S. Hys. 41 and 45 and S.T. Hy. 60, Projs. F 03-1 (14), F 027-1 (2) and F 067-1 (2), Washington Co. Bids Apr. 14. CD 4/20, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Power Constr. Co., 212 S. Marion St., Oak Park, Ill., CA, $711,223, high SCHOOL, gymnasium, ORLANDO

Critical jobs are routine for JOHNSTON PUMPS

take this gas pipeline booster station, for example

Johnston Pumps were selected for handling cooling water at this natural gas pipeline booster station located in Depew, Oklahoma, because...

Large savings were effected on installation costs. Higher efficiency meant lower operating costs. The flat horsepower curve of the Johnston vertical turbine pump allows operation against throttled discharge or reduced heads without overloading the driver. Vertical, hydraulically balanced design eliminates radial thrust and consequent bearing wear, thus cutting maintenance costs to the bone.

This is another typical example of the ability of Johnston equipment to handle all types of pumping jobs. Why not consult with Johnston engineers on YOUR particular pumping problem? They're always glad to help.

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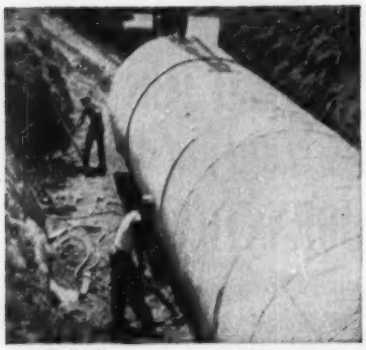
JOHNSTON VERTICAL PUMPS

Johnston Pump Company
3272 East Foothill Blvd.
Pasadena 19, California



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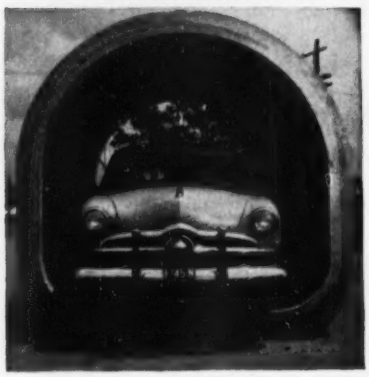
UNIVERSAL

world's largest manufacturer of concrete sewer and culvert pipe

can make it



26 plants for convenient, economical service.

30 years' experience in pipe, cribbing, precast manholes, river-weights, flat base pipe. Name it, we make it!

UNIVERSAL
CONCRETE PIPE CO.
297 South High Street
Columbus, Ohio
Publishers of Famous "Pipe Dreams"

PARK, ILL. School District 230, Orlando Park, Ill. Bids Apr. 15, awarded Apr. 28. CD 4/30, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 21 Missouri and Arkansas
STREETS AND ROADS
May 22 Minnesota

† **Okla., Oklahoma City**—TEST CELLS—B.A. 5/29—Contracting Officer, Tinker Air Force Base, conversion of 10 test cells Bldgs. 214 and 215, IFB 34-601-53-575. $875,000.

BIDS ASKED—BUILDINGS

▲ **Tex., San Antonio**—B.A. 5/26—Straus-Frank Co., 301 S. Floras St., 1 and 2 story, office and warehouse. $1,000,000. Extended date. W. E. Simpson Co., 945 Milan Bldg., engr. Atlee B. & Rob. M. Ayres, Transit Tower, archt. CD 4/29.

Kan., Kansas City—WAREHOUSE, etc.—B.A. 5/27—Bd. P. Utilities, City Hall, warehouse, shed, transformer, repair and storage, $800,000. John Maultsby, New Brotherhood Bldg., Kansas City, Kan., archt. CD 5/4, under LB.

▲ **Tex., Houston**—APARTMENT HOTEL—Bids Asked—Melvin A. Silverman, 2504 S. MacGregor, 14 story Luxury Apartment Hotel. $6,000,000. Lloyd & Morgan, 4605 Montroe Bldg., archts. I. A. Naman, 2027 Harold St., and Walter P. Moore, 2 Pinedale St., consult. engrs. CD 5/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Henry J. Kaiser Co.**, 1924 Broadway, Oakland, Calif., **Walsh Constr. Co.**, 122 E. 42 St., New York, N. Y., and **B. Perini & Sons**, 73 Montwait Ave., Framingham, Mass., Apparent Low Bidders LB, **$10,349,256**, est. $10,114,881, powerhouse and switchyard Garrison Dam and Reservoir Proj., CIVENG-32-015-53-19, NORTH DAKOTA, U. S. Eng., Fort Lincoln, P.O. Box 300 Bismarck, N.D. Bids Apr. 30. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **M & M Contg. Corp.**, c/o owner, CA Est. 5646 Holmes St., Kansas City, Mo. **$2,400,000.** 209 HOUSES on 30 acre tract and SHOPPING CENTER US 50 and Hoke Rd., KANSAS CITY, MO. J. A. McClendon & R. D. McCrosky, 5646 Holmes St., Kansas City, Mo. Hare & Hare, 114 W. 10 St., Kansas City, Mo., sub-div. engrs.

▲ **Willkyte-16 Corp.**, c/o North Kansas City Development Co., 21 and Burlington Sts., North Kansas City, Mo. CA Est. **$1,000,000.** 85,000 sq. ft. mfg. PLANT, on 11½ acre plot, Atlantic and 9 Sts., NORTH KANSAS CITY, MO. Hoffman Radio Corp., c/o H. Leslie Hoffman, pres., 3761 S. Hill St., Los Angeles, Calif. CD 5/5.

▲ **Peter Kiewit Sons' Co.**, 1024 Omaha National Bank Bldg., Omaha, Neb., and **Bechtel Corp.**, 3780 Wishire St., Los Angeles, Calif. CA. **$2,248,781.** MFG. PLANT, OMAHA, NEB. Continental Can Co., 100 E. 42 St., New York, N. Y. Bids Apr. 30. CD 5/1.

▲ **I. A. Jacobson & Co.**, 3200 E. 31 St., Tulsa, Okla. Owner Builds. **$4,000,000.** Ranch Acres MEDICAL and SHOPPING CENTER, TULSA, OKLA.

▲ **International Creosoting & Constr. Co.**, Texarkana, Tex. Purchases, Day Labor, **$1,750,000** reconstr. creosoting PLANT, TEXARKANA, TEX. C 4/29.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 27, 28 California
STREETS AND ROADS
May 27 California

▲† **Washington**—B.A. 6/30—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, install powerhouse equipment and complete powerhouse and appurtenances Chief Joseph Dam, CIVENG-45-108-53-68. $7,500,000. Plans deposit $50. CD 12/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Baldwin-Lima Hamilton Corp.**, 940 Simpson St., Eddystone, Pa., LB, **$853,250**, four butterfly valves for Palisades Power Plant, Palisade Proj., Spec. DS 4911, IDAHO Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Bids Apr. 30. CD 3/17.

H. Halvorson, Inc., Ziegler Bldg., Spokane, Wash., CA, **$817,332**, operations bldg. and central power plant at Ault Field, Spec. 35605, WHIDBEY ISLAND, WASH. P. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids Mar. 3. CD 3/9, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Guy F. Atkinson Co., 22233 S. Santa Fe St., Long Beach Calif., LB, **$3,389,766**, grading, paving 6 mi., 4 bridges 3 pedestrian undercrossings, etc. In and near city of Claremont and Pomona, between San Dumas Ave. and San Bernardino Co. Line, Los Angeles Co.;

Griffith Co., 1060 S. Broadway, Los Angeles, Calif., LB, **$610,762**, grading, surf. 3.5 mi. between Rt. 2 and Oceanside, San Diego Co. Bids Apr. 30. CD 4/8.

▲† **Central Dredging Corp.**, 108 W. 6 St., Los Angeles, Calif., LB, **$1,837,865**, shore protection dredging at Port Hueneme Harbor, POINT MUGU, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. CD 7/23/48.

Peter Sorensen, P.O. Box 790, Redwood City, Calif., LB, **$887,674**, Schedule 2, water supply, Millbrae to Baden Sec. of Sunset Supply Line, WD 647, SAN FRANCISCO, CALIF. Public Utilities Comn., City Hall, San Francisco, Calif. Bids Apr. 28 CD 3/16.

Jerry Artukovitch & M. A. Artukovitch Constr. Co., 723 Union Ave., Montebello, Calif., CA, **$889,999**, Bushard St. Trunk and treatment plant sewers, SANTA ANA, CALIF. Orange County Sanitation Dists., 1,23,6,7 and 11, 1104 W. 8 St., Santa Ana, Calif. Bids Apr. 22, awarded Apr. 29 CD 5/1, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sager Constr. & Repair Co.**, Everett, Wash., CA, **$1,000,000**, piping installation for paper MILL, EVERETT, WASH. Scott Paper Co., Soundview Div. Everett, Wash. CD 3/19 under CA.

CANADA

LOW BIDS AND CONTRACTS

▲ **Ont., Toronto**—SCHOOLS—B.A. 5/19—First Twp. School Area, North York, 7 Kenneth St., Roding St., Baycrest Ave., Anthony Rd. and Westminister Parkway Schools, $1,500,000. Plans deposit $50. C. P. Bond, 95 Woodlawn Ave., archt.

▲ **Que., Montreal**—DEPARTMENT STORE—B.A. 5/21—Robert Simpson Montreal Ltd., 977 St. Catherine St. W., superstructure for department store addn. Approx., $4,100,000. Margison & Babcock, 119 Isabella St., Toronto, Ont., engrs. F .S. Corley, c/o owner, archt.

▲ **B. C., Burnaby** — STORES — B.A. 5/29 — Simpson-Sears Ltd., 176 Yonge St., Toronto, Ont., 2 story, bsmnt. retail store and 3 story, bsmnt mail order store. $6,000,000. Gardiner, Thornton & Partners and Sharp & Thompson, Berwick & Pratt, 1664 W. Broadway, Vancouver, archts. CD 12/19.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Mannix Ltd., 332 7 Ave. West, Calgary, Alta., CA, **$585,573** earthfill dam and dykes and excavation of channel Raymond, ALBERTA. Prairie Farm Rehabilitation Act, Regina, Sask. Awarded Apr. 6.

Burns & Dutton Concrete & Construction Ltd., 5440 First St. W., Calgary, Alta., CA, **$623,539** drill and recreational hall at air base, PENHOLD, ALTA. Defence Constr. Ltd., Kensington Bldg., Winnipeg, Man. Awarded Apr. 15.

▲ **Pressure Pipe Co. of Canada Ltd.**, 6905 Clauranald Ave., Montreal, Que., CA, **$1,818,296**, supply of concrete pressure water pipe, MONTREAL, QUE. City, C. E. Langpre, city clk., City Hall, Montreal, Que. CD 3/2/48.

BUILDINGS

LOW BIDS AND CONTRACTS

Manson Bros. Ltd., 1871 Waverley St., Burnaby, B. C., LB **$556,000** SENIOR HIGH SCHOOL HANEY, B. C. School District No. 42, Haney, B. C. Bids Apr. 13 CD 3/5.

George Hart Ltd., 163 Widksteed Ave., Leaside, Ont., CA, **$600,000** COMMERCIAL PRODUCTS bldg. at Tunney Park, OTTAWA, ONT. Atomic Energy Comn. of Canada Ltd., Commercial Products Div., P.O. Box 93, Ottawa, Ont. Bids Apr. 20. CD 3/26.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **S. Birch & Sons and Lytle & Green**, Securities Bldg., Seattle 1, Wash. LB. **$1,473,016**, est. $1,460,000. constr. waterfront arterial consisting 759 ft. rein.-con. viaduct, tunnel and seawall, KETCHIKAN, ALASKA. Alaska P. Wks., Dpt. Interior, Juneau, Alaska. Bids Apr. 30. CD 4/9.

▲† **S. Bergesen**, Rte. 10, Box 971, Tacoma, Wash. CA. **$2,220,000.** 82x82 ft., steel frame power house addn., with installation of equipment, 22,000 ft. underground lines, etc., Spec. 31621, KODIAK, ALASKA. P. Wks. Officer, 17th Naval Dist., Kodiak, Alaska. CD 4/7, under LB.

▲† **S. Macri Constr. Co.**, Anchorage, Alaska. CA **$1,027,140.** crashboat facilities at Naval Air Station, Spec. 31624, KODIAK, ALASKA. P. Wks. Officer, 17th Naval Dist., Kodiak, Alaska. CD 4/21, under LB.

†**Carson Constr. Co.**, P. O. Box 1153, Helena, Mont. CA **$678,000.** utilities sys. extens. at Naval Air Station, Spec. 31623, KODIAK, ALASKA. P. Wks. Officer, 17th Naval Dist., Kodiak, Alaska. CD 3/18, under LB.

PUERTO RICO

BIDS ASKED—HEAVY CONSTRUCTION

† **Puerto Rico**—PIER—B.A. 5/29—Dist. P. Wks. Office Tenth Naval District, Naval Station, San Juan, replacement of Pier No. 2, Naval Station, Roosevelt Rds., Spec. 32819. Plans deposit $10.

(Proposal Advertisements see pp. 157 to 159)

PROFIT MARGINS: GOING DOWN

	Sales		Profits		Profit Margin	
	1953	1952	1953	1952	1953	1952
	(In thousands)					
Air Conditioning						
York Corp.	$18,623	$14,307	$555	$440	3.0%	3.1%
Cement						
General Portland.	7,433	7,193	1,170	1,244	15.7	17.3
Lehigh Portland..	10,505	8,144	834	600	7.9	7.5
Lone Star	16,826	17,946	1,714	1,535	10.2	8.6
Contracting						
Merritt-Chapman	17,660	17,208	91	269	0.5	1.6
Heating Equipment						
Amer. Radiator..	66,744	57,963	2,901	2,685	4.3	4.6
Minneapolis-H'well	47,721	33,946	2,333	1,586	4.9	4.7
Machinery						
Caterpillar Tractor	118,401	130,353	5,925	5,534	5.0	4.2
Worthington	31,427	34,611	1,191	1,506	3.7	4.4
Paint						
Devoe & Raynolds	10,113	9,423	180	47	1.8	0.5
Plumbing						
Walworth Co....	11,469	13,177	192	469	1.6	3.6
Wallboard: Roofing						
Johns-Manville ..	57,255	56,075	4,943	5,508	8.6	9.8
Nat. Gypsum	27,790	21,847	1,879	1,630	6.8	7.5
U. S. Gypsum....	45,037	41,661	4,854	4,637	10.8	11.1
Miscellaneous						
Pittsburgh Plate Glass	113,164	97,439	9,571	8,732	8.5	9.0

Building-materials companies sell more but make less profit per sales dollar

Although the first quarter of 1953 was a good one for construction generally, there is evidence that it's getting harder for companies supplying materials and services to make money. That's the story told by the table (above), which is a sampling of first-quarter reports on sales and earnings.

It's clear that, although most companies did a greater volume of business in the first quarter of 1953 than they did during the corresponding quarter last year, many of them made less profit per sales dollar.

Of the 15 companies listed, 10 had lower profit margins. You can blame this partly on the fact that costs of raw materials, labor, and freight have kept on rising, while at the same time many of the finished products that building-materials companies sell were under price control during part of the first quarter of 1953. But that isn't all. It is quite possible that buyer resistance to higher prices is getting stronger in the construction field, just as it has in many other industries.

By studying the table, you will see that most of the concerns that were able to squeeze more pennies of profit out of their sales dollars in the first quarter were cement companies. In this industry, profit margins generally are particularly favorable when plants are operating at capacity. That's because a high proportion of costs in this industry are fixed—they have to be paid no matter what the industry's volume of business may be. So when cement plants are running at capacity, margins are high. When they fall below capacity, profit margins drop fast.

Of course, in some cases there are special reasons why companies made a poorer showing this year. Merritt-Chapman & Scott Corp., for instance, blamed part of the decline on nonrecurring expenses: costs of recent financing and outlays to develop new projects.

But this trend of lower profit margins fits into the overall picture of lower profit margins being found in U. S. industry.

Old houses for new?

NAHB offers a trade-in plan to ease the buyer's down payment

Last week in New York City, the National Association of Home Builders explained some details of its plan by which builders would allow a trade-in value on used houses toward a down payment on the new homes they have to sell.

Obviously, there are these weak points in such a setup: (1) Unless he can get financing, the builder will tie up his working capital fast, (2) in an effort to sell his new house, the builder may appraise trade-in values of used houses too high, and lose money when he resells.

What NAHB proposes is that the Federal Housing Administration provide the appraisal service and insure the financing. The best place to start, it believes, is with the small two-bedroom houses built under FHA Sections 603 and 203 (B) 2 (D). NAHB thinks that such houses will meet FHA requirements, and will not be penalized with low appraisals. Furthermore, such houses should take a generous loan-to-value ratio on FHA mortgage insurance.

• **Boost business**—And the association points out that such houses offer builders a chance to increase their own business—and perform a social service—by reconditioning the houses before reselling them.

NAHB estimates that around 4,000,000 two-bedroom houses have been put up since World War II, during a time when critical materials were short. Many of these houses are owned by persons whose families are now larger, and who currently have enough equity for a down payment on a larger house, provided they can sell their present homes.

• **Typical deal**—As outlined by NAHB, here's how a typical trade-in deal might work, provided FHA approves the idea and the necessary changes are made in the Housing Act:

A builder has a new three-bedroom house which he'll sell for $15,000. He has a prospective buyer who owns a two-bedroom house, originally built under FHA inspection, on which the mortgage is now $5,000. For a fee, the builder gets an appraisal from FHA, which estimates resale value at $10,000, provided the builder makes cer-

tain repairs and improvements, including new plumbing, repainting inside and out, a carport, and so on.

• **Trade-in $3,000**—The builder figures that all this will cost $2,000, making the trade-in value of the house $8,000. Deducting the $5,000 mortgage leaves the owner's equity at $3,000. So the builder takes over the house and its mortgage, crediting the owner with $3,000 as a down payment on his new house.

From FHA, the builder gets a firm commitment for $8,000, provided the changes are made. On the basis of this, he borrows construction money from his bank. When the job is done, he can sell or rent the reconditioned house. Of course, there is no guarantee that he will get $10,000 for it, but NAHB figures that if down payment and carrying charges are moderate, he shouldn't have too much trouble.

Most states have no plans for rent control in 1953

When federal rent control expires July 31, there will have been no widespread enactment of state laws to replace it. As of this week, more than half of the state legislatures that had met in sessions this year had already adjourned.

New York and Maryland are the only states that have passed rent-control laws. Bills are pending in Connecticut, Illinois, Massachusetts, Missouri, Pennsylvania, and New Jersey. And bills were turned down in Rhode Island and West Virginia.

• **New York**—The New York law extends rent control on residences for two years. It makes certain adjustments, including these:

• Rents may be boosted 15% above the level of March 1, 1943.

• Landlords are now entitled to 6% annual return on assessed value, instead of 4%.

• Owners of four or less housing units are exempted from a provision which limits to 15%, total rent adjustment in any one year.

• Cities and counties may decontrol their areas. Business and commercial rent controls are also extended until July 1, 1954, and tenants who are not already paying 30% more than the 1943 rent levels may now have their rent boosted up 15% beyond the existing level.

In Maryland, the bill giving Baltimore, Hagerstown, and Alleghany County the right to enact local rent control, may be unconstitutional and it will be tested in court.

Construction increases along Lake Erie

More than $50 million will soon be spent on new plants and expansion of existing ones on northeastern Ohio's Chemical Shore—the area along Lake Erie east of Cleveland. Since 1949 alone, the chemical industry has spent a quarter of a billion dollars on construction there. The reasons are: (1) The Chemical Shore either has or is near raw materials, and (2) many satellite plants have been built in the area to use by-products of basic chemical producers.

Just recently, General Tire & Rubber Co., of Akron, announced plans to build a $6-million plant to make polyvinyl chloride. The contract has been placed with United Engineers & Contractors, Inc., Philadelphia.

At the same time, U.S. Rubber Co.'s Naugatuck Chemical Division plant is going to spend $3.2 million to double production of Marvinol polyvinyl resin, used in plastics.

Union Carbide & Carbon Corp. expects to spend more than $35 million expanding its subsidiary, Electro Metallurgical Co. and providing new facilities for another subsidiary, Linde Air Products Co., which will make tonnage oxygen for the steel industry. Last year, UCC spent more than $29 million in this region.

Diamond Alkali started the ball rolling many years ago when it used underground rock salt in the area, combined with limestone from upper Michigan to make soda ash.

CONSTRUCTION TRENDS

The Pacific area—California, Washington and Oregon—was the No. 1 housing market last year.

Divide the nation into nine regions and look at the figures covering new urban units built in 1952. You find that only the Great Lakes (Illinois, Indiana, Michigan, Ohio and Wisconsin) and Mid-Atlantic (New York, New Jersey, Delaware, Pennsylvania, Maryland and the District of Columbia) regions came at all close to the Pacific states. Here's the story, region by region:

	New Urban Units (1952)
Pacific	114,000
Great Lakes	105,000
Mid-Atlantic	103,000
South West	89,000
South Atlantic	72,000
North Central	44,000
New England	34,000
South Central	32,000

A big reason that the Pacific region leads the parade (in addition to the high rate of population increase) is the relatively large number of families living there. In terms of population, that section stands behind the Mid-Atlantic, Great Lakes, South Atlantic and South West regions. But in terms of the number of families in each region, the Pacific states skip to third place—trailing only the Mid-Atlantic and Great Lakes regions. The Pacific area has more—but relatively smaller—family groups per 1,000,000 people than other regions.

Now in buying a home, it's the family that counts. You don't sell homes to individuals.

You can be sure that there are other reasons for the active housing market on the West Coast. Income in that area jumped 42% since 1947. For the nation as a whole, income rose by 39%. Average family annual income in the Pacific area was $6,300 in 1952. That's a gain of 28% since 1947. Average family income for the nation was 5,800—up 24% over 1947.

The West Coast building boom is nothing new, of course. Here's the story for that region, from 1947.

	New Urban Units
1947	97,000
1948	111,000
1949	93,000
1950	128,000
1951	91,000
1952	114,000

Oddly enough, the best year the Pacific region had—1950—earned only third place for its housing race. In addition to 1952, the West Coast was tops in 1947 and 1948.

This is all the more impressive when you consider that the area has less than 10% of the total national population. More than 43% of the U. S. population is concentrated in the Mid-Atlantic and Great Lakes regions. For builders and bankers, for suppliers of construction materials and home furnishings the housing performance of the Pacific area is well worth keeping a sharp eye on for the future.

Market for GI, FHA mortgages uncertain as long-term money gets more expensive

In the mortgage market this week the big question was: Will the boost in VA and FHA mortgage rates lead to a rush of this type of financing? Some lenders are skeptical (ENR May 7, p. 21), but a spokesman for the mutual savings banks disagreed with the pessimists.

He was Harry Held, a vice-president of New York City's Bowery Savings Bank, the largest savings institution in the world, and chairman of the committee on mortgages of the National Association of Mutual Savings Banks.

Held said the rate boost "should subtiantially widen the demand for this type of loans by mutual savings banks." He noted that during the year ended March 31, savings banks invested nearly 83% of their total deposit gain in mortgages. As of March 31, savings banks had 50% of their deposits in mortgages, the highest ratio in many years.

However, other observers in the savings-bank field point out:

(1) The very fact that the ratio of mortgage loans to deposits has risen to a high point is going to make savings banks more cautious about increasing the ratio any further.

(2) There are plenty of other attractive investments for long-term lenders.

• **High yield**—For instance, the return on tax-exempt municipal bonds is now at its highest level since 1940. And there are plenty of these bonds scheduled to arrive in the market during the next few weeks. According to the Daily Bond Buyer, the "visible supply" for the next 30 days is about $418 million.

Coming up in a few days is a $100-million issue to finance a bridge over the Delaware River (ENR Mar. 12, p. 105). Later on, the New Jersey Turnpike Authority plans to sell about $130 million of bonds. These bonds will have to be offered at attractive yields, just as was necessary last week for the $125-million issue of New York State Thruway Authority bonds.

• **Treasury competes**—Another action that is going to affect the supply of mortgage money is the federal government's financing plans. The Treasury has embarked on a long-range program to shift more of the huge federal debt, now predominantly in short-term issues, into long-term bonds. Such bonds will compete with mortgages.

The Treasury's first venture in this direction—an offering of $1 billion worth of 3¼% bonds—has helped to knock down bond prices and make money tighter.

This has already had its effect on construction outside the housing field. Last week, Southern Bell Telephone Co. took the unusual course of rejecting all bids for a $30-million debenture issue. The best bid would have cost Southern Bell almost 3.80%. No Bell System company has paid that kind of interest on debentures since the mid-1930's.

Selling abroad

Construction machinery men discuss export

Manufacturers of construction machinery and allied equipment throughout the United States are growing more conscious of the value of their export business as an aid to bolstering total sales if anything happens to the domestic market. And they hope to increase their exports—which currently average about 15% of total production—in spite of increasing foreign competition and restrictive government rules and export regulations.

These objectives were explored last week in Chicago at the initial meeting of the brand-new Export Managers Division of the Construction Industry Manufacturers Association.

• **Long-range plans**—High on the agenda were such topics as "the long-range view of the fundamentals of export distribution": sales, service, parts, distributorships and foreign credit.

In discussing export problems, Paul L. Molnar, manager of industrial sales, foreign operations, for International Harvester Co., declared that "a separate and specialized sales organization is necessary both at the exporter as well as the distributor level. If a sound, aggressive job is to be accomplished, individual and technically competent marketing units are essential. This type of equipment cannot be handled properly as a side-line of a general sales organization."

• **The mutual responsibility**—Molnar warned his fellow exporters that the key to success in exporting is a good distributor organization. And that depends upon both the supplier and the foreign distributor realizing their mutual responsibilities.

The supplier, said Molnar, must provide good equipment in adequate quantity. By the same token, the foreign distributor must provide adequate service facilities, together with efficient sales and service personnel.

Drawing on his company's long experience as an exporter, Molnar outlined a few examples:

New types of machines should be well proved in the domestic field before being released for overseas sale. Complete instructions on setting up and operation of the equipment must be provided.

Where sales volume of equipment into a certain area warrants doing so, instruction manuals in the language of that country should be furnished. If this isn't feasible, the necessary information may be provided by clear-cut sketches or good photographs with instructions in English, using the simplest of terms and language.

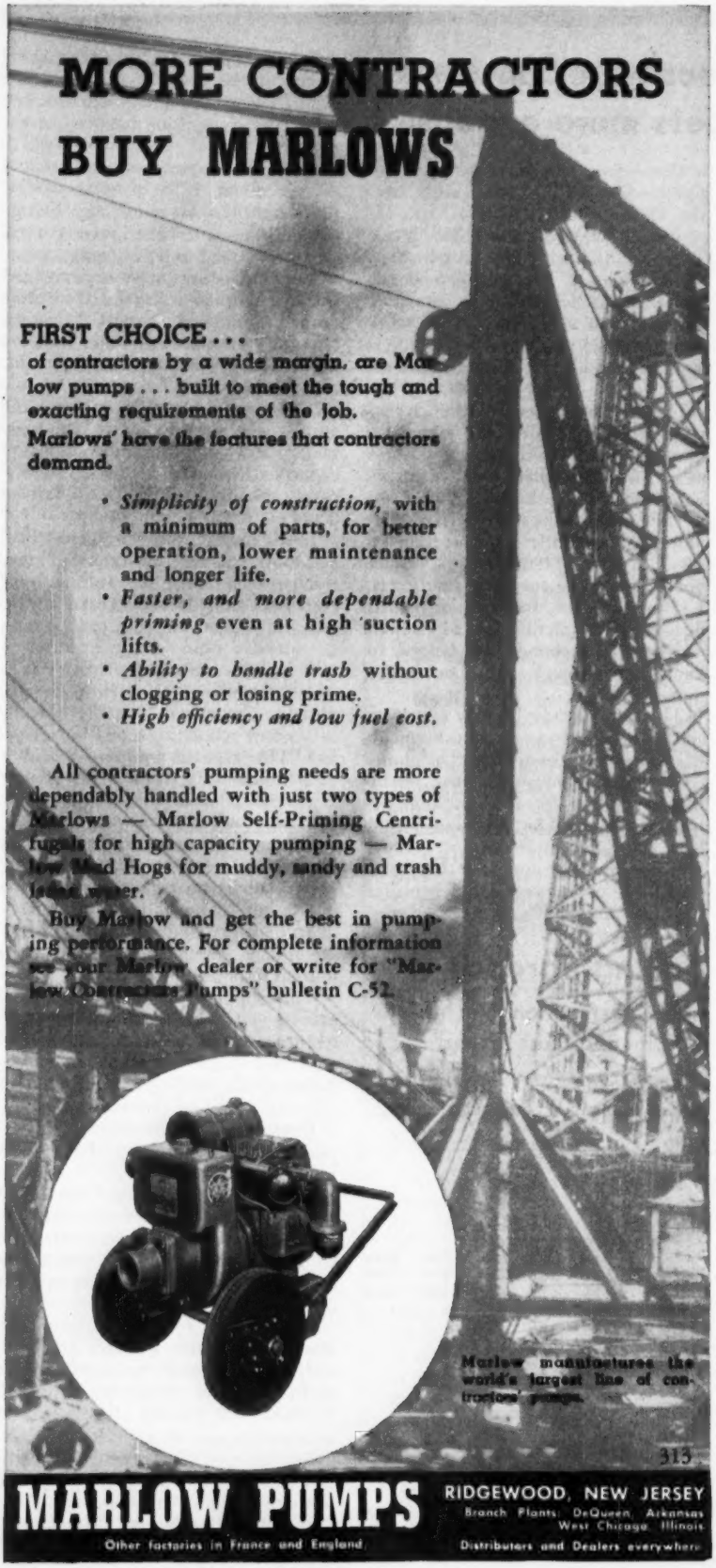
In concluding his talk Molnar told the group that the supplier's produc-

BUILDING COST ROUNDUP

1913=100

		1952	1953				
Weighted	**Orig. base**	**Mar**	**Jan**	**Feb**	**Mar**	**Apr**	**May**
ENR Construction	1913=100	551	587	587	587	590	589
ENR Building	1913=100	407	425	425	425	427‡	426
American Appraisal*	1913=100	544	568	567	569	...	...
Assoc. Gen. Contractors	1913=100	378	399	399	399	...	...
Boeckh, U. S. average	1926-29=100	422	438	438	443	...	...
Marshall & Stevens	1926=100	432	...	...	443	...	...
Smith, Hinchman & Grylls*	1926=100	487	511	511	511	507	...
Contractor							
Aberthaw	1914=100	374	...	...	383	...	...
Austin	1926=100	338	...	...	344	...	...
Fruin-Colnon	1926=100	434	454	456	456	...	...
Fuller	1913=100	413†	422	...	...	422	...
Turner	1939=100	491†‡	496‡	...	...	496	...

* Corrects for productivity † April ‡ Corrected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tion department must have considerable lead time in producing equipment for foreign distribution. Such commitments should be made from 9 to 18 months in advance of actual production. He also recommended the careful selection of foreign distributors. Considerable weight should be given to their banking and governmental connections, and their ability to secure import permits, he said.

• **Mutual Security Program**—Many equipment manufacturers are not taking full advantage of the services offered by the Mutual Security Agency in developing their foreign markets, declared William T. McCormick, of MSA.

Some of the services offered by MSA, according to McCormick, are: detailed reports on commodities which foreign countries propose to import; calls for bids by foreign governments; information on foreign import practices; a directory of U. S. enterprises interested in exporting, printed in English, French, German and Italian; detailed guidance on MSA and Point Four export problems, regulations, trade practices and procedures; and a contact clearing house service, devoted to the promotion of investment abroad. Any of these services may be obtained by visiting or writing MSA headquarters in Washington, D. C., he said.

Business briefs . . .

• **Plenty of mortgage money** will be available from savings & loan associations this year. According to the National Savings & Loan League, accounts in savings & loans climbed more than $1.1 billion in the first four months of 1953. Estimates are that the total 1953 gain will be $4 billion. S&Ls invest most of their assets in home mortgages.

• **LeTourneau, Inc.** has completed its negotiations with Westinghouse Air Brake (ENR May 7, p. 101). It will sell its earthmoving and related activities to Westinghouse for $26.3 million. Westinghouse takes over all fixed assets at the Peoria, Ill., and Toccoa, Ga., plants. The new business will be called LeTourneau-Westinghouse Co., with no change in personnel. R. G. LeTourneau, president of the selling company, will spend part of his time as a consultant to the new company.

• **Ford Motor Co.** plans to spend half a billion dollars in the next few years to complete a $1.4-billion postwar ex-

pansion program. Gulf Oil Corp. plans to put $200 million into capital expenditures this year.

• **Bakelite Co.**, division of Union Carbide and Carbon Corp., will build three large plants to make polyethylene for the fast-growing plastics industry (ENR May 7, p. 37). Two plants will be in Texas, one in California.

Activity This Week

As reported to ENR
(in millions of dollars)

Amount of contracts let

	This Week	Cumulative 20 wks 1953	1952	% chge
Federal	$22.6	$587.7	$777.1	−24
State and Municipal	86.0	1,916.7	1,583.5	+21
Total pub.	108.6	2,504.4	2,360.6	+6
Total priv.	173.6	3,613.2	2,735.8	+32
U. S. Total	**$282.2**	**$6,117.6**	**$5,096.4**	**+20**

Contracts by type of work

Waterworks	$4.3	$96.4	$92.2	+5
Sewerage	11.1	146.1	86.5	+69
Bridges	5.4	298.9	139.9	+114
Highways	38.4	608.9	510.9	+19
Earthwork, Waterways	4.1	134.9	228.5	−41
Buildings:				
Public, excl. hsg.	32.4	635.4	643.3	−1
Housg., pub.	1.3	244.4	393.2	−38
Housg., priv.	96.5	1,613.2	1,122.7	+44
Commercial	32.6	388.7	221.9	+75
Industrial	38.8	1,307.8	1,155.8	+13
Unclassified	17.3	642.9	501.5	+28
Total	**$282.2**	**$6,117.6**	**$5,096.4**	**+20**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100 1913	1926	1949
Constr. cost	May	589.21	283.23	123.52
	Apr.	589.71	283.47	123.62
Bldg. cost	May	426.47	230.54	121.27
	Apr.	426.63	230.62	153
Volume	Apr.	529	215	153

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Bids: June 2, 1953

West Virginia Turnpike Commission

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT 26, 26A, 26B

The work to be done under Contract 26 consists in performing the required grading and drainage for approximately nine and seven-tenths (9.7) miles of the West Virginia Turnpike including the relocation of 1.2 miles of West Virginia Secondary Route 15, Fayette County, 0.5 miles of West Virginia Secondary Route 83, Kanawha County, together with the construction of substructures for four bridges, five reinforced Box Culverts and one I-Beam Timber Deck Bridge. This work is located between the town of Mahan, Fayette County, Mile 57.9 and the town of Standard, Mile 67.6 Kanawha County, West Virginia and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

Contract 26 consists of the combined quantities of Contract 26A and Contract 26B.

The principle items of work include:

	Approximate Quantity 26A	26B	
Clearing and Grubbing	125	100	Acres
Excavation (All Types)	1,229,000	1,459,000	Cu. Yds.
Concrete	1,665	2,845	Cu. Yds.
Reinforcing Steel	135,500	207,400	Pounds
Steel Piles (Furnish)	56,760	46,430	Pounds
Steel Piles (Drive)	1,070	875	Lin. Feet
Culvert Pipe and Underdrain	5,900	6,750	Lin. Feet

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A.M. Eastern Standard time, on June 2, 1953, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton
Chairman

May 5, 1953

FOR SALE

FOR SALE
CATERPILLAR MODEL 70
SCRAPER-TRAILER
Cable Controlled - 11 Cu. Yd. Capacity
New 1948
Bids due on or before 10 A.M. (E.D.S.T.) Tuesday, June 2, 1953.
For details and bid papers write or phone
THE PORT OF NEW YORK AUTHORITY
Dept. of Purchase & Administrative Services
111 - 8th Ave., New York 11, N. Y.
ALgonquin 5-1000, Ext. 206

Bids: May 28, 1953

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 28th day of May, 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 6				
		J. H. Thomas, District Engineer, 30 West Main Street, Hornell, N. Y.				
Tioga	R.C. 53-48	Smithboro-Nichols-Wappaseening, S.H. 1615 Tioga-Nichols Br.No.1 (Susquehanna River)	0.13	Bridge Deck: Repair and Painting	$8,000 Plans $10	140,000
		DISTRICT No. 8				
		J. S. Bixby, District Engineer, Pleasant Valley Rd., Poughkeepsie, N. Y.				
Columbia & Dutchess	T.S.P. 53-1P	Taconic State Pkwy. Sect. 7, Pt. 3; Sect. 8; Sect. 9A, Pts. 1 & 2; and Sect. 9B, Pt. 1	3.64 (Acc.) 12.29 (Pky.)	8' Cem. Conc. Pavt. 2 @ 24' Var. Wide=13.69 Mi. Asp. Conc. Ty. 1A, Opt.= 1.34 Mi. Bit. Mac. Gr. Gravel D.S.T.=0.90 Mi.	$230,000 Plans $100	4,205,000
Columbia	FARC 53-45	Bell Pond-Claverack, S.H. 1919 Project F-587(5)	3.80	Asp. Conc. Ty. 1-A, Opt.	$11,000 Plans $10	204,000
		DISTRICT No. 9				
		F. W. Donovan, District Engineer, 71 Frederick Street, Binghamton, N. Y.				
Chenango	FARC 53-44	Smyrna-Sherburne Pt. 2, S.H. 9097 Project S-838(2)	0.81	Asp. Conc. Ty. 1A, Opt.= 0.79 Mi. Misc. Work=0.02 Mi. Br. Plate Girder 212.3' Br. Conc. Closed Box 40' Br. Conc. Closed Box 40'	$23,000 Plans $10	421,000
Schoharie	FARC 53-41	Cobleskill-Sharon Springs Pt. 2, S.H. 1467 Project S-417(1)	5.21	Asp. Conc. Ty. 1A, Opt.	$9,500 Plans $10	176,000
Delaware	FARC 53-42	Hancock-Long Eddy, S.H. 8464 Project F-502(14)	5.45	Bit. Macadam Ty. 1	$10,000 Plans $10	172,000
		DISTRICT No. 10				
		M. E. Goul, District Engineer, Montauk Highway, Babylon, L. I., New York				
Bronx	FAMDE 53-4	Major Deegan Expressway Cont. No. 4 Project U-UG-1082(15)	1.31	Cem. Conc. Pavt. (Viaduct) =0.45 Mi. Sheet Asphalt Pavt.=0.62 Mi. Grading, Drainage, Misc. Work=0.24 Mi. RR Sep. Comp. Viaduct 2368.4' Pedest. Overpass Built-up Sect. 179.5'	$252,000 Plans $50	4,580,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specifications, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

EARLY CLOSING DATE BECAUSE OF MEMORIAL DAY

Because of the Memorial Day Holiday, the Official Proposals Section of the June 4 issue will close for press one day earlier than usual—Thursday, May 28.

OFFICIAL PROPOSALS

Bids: May 25, 1953

Service Road From Golf Course to Route 25

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-140.013

Sealed proposals for the construction of a service road from the Golf Course to the New Jersey State Highway Route 25 at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Monday, May 25, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, May 14, 1953

Bids: May 25, 1953

Furnishing and Delivering Pipe and Fittings

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 1256-W

Sealed proposals for furnishing and delivering Seventeen thousand, two hundred fifty (17,250) lineal feet of 20-inch and seven thousand eighty (7,080) lineal feet of 24-inch mechanical joint cast iron pipe and fittings, or seventeen thousand, two hundred fifty (17,250) lineal feet of 20-inch and seven thousand eighty (7,080) lineal feet of 24-inch prestressed concrete cylinder pipe and fittings with rubber and steel joints, will be received at the office of the Purchasing Agent, Room 3, of the Washington Suburban Sanitary Commission, 4017 Hamilton Street, Hyattsville, Maryland, until Monday, May 25, 1953 at 2:30 P. M., Eastern Daylight Saving Time, at which time and place they will be publicly opened and read.

Specifications may be obtained from W. R. Douglas, Purchasing Agent of the Commission.

Raymond W. Bellamy, Chairman
L. S. Ray
J. Norman Ager
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

OFFICIAL PROPOSALS

Bids: June 16, 1953

Miscellaneous

SEALED PROPOSALS will be received by the President of the Levy Court of New Castle County, Room 134-A, Public Building, Wilmington, Delaware, until 11:00 A.M. Daylight Saving Time, on June 16, 1953 and at that time publicly opened for contracts involving the following approximate quantities:

CONTRACT SD-47
ROSEVILLE PARK

Lump Sum Clearing & Grubbing
9,000 C.Y. Excavation
100 C.Y. Borrow Pit Stripping
6,000 C.Y. Selected Borrow
1,620 Tons Hot-Mix Asphaltic Conc.
3,000 Gal. R. C. 1 Tack Coat
0.5 C.Y. Cement Concrete Masonry
35 L.F. 12" R. C. Pipe
364 L.F. 15" R. C. Pipe
90 L.F. 18" R. C. Pipe
50 L.F. 24" R. C. Pipe
20 S.F. 4" Sidewalk
20 S.F. Replace Flagstone Walk
35 L.F. Resetting Brick Curb
1 Ea. Type "B" Catch Basin
3 Ea. Type "C" Catch Basin
1,640 Lbs. Castings
3,700 S.Y. Top Soil
0.80 Ac. Seeding
2,100 S.Y. Sodding
80 L.F. Perforated Corrugated Metal Pipe 6" Underdrain

CONTRACT-SD-51
WOODCREST
Surry Ave.

1,075 C.Y. Excavation
1,150 Tons Selected Borrow
840 Tons Waterbound Macadam
325 Tons Hot-Mix Asphaltic Conc.
560 Gal. R. C. 1 Asphlat
20 L.F. 4" V. C. Pipe
175 S.Y. Cement Concrete Gutters (6")
2,075 L.F. Integral Curb & Gutter
30 S.F. Cement Concrete Sidewalk (4")
1,800 S.Y. Topsoil
0.35 A. Seeding

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the County Engineer.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

OFFICIAL PROPOSALS

The envelope containing the proposal must be marked "Suburban Development Contract No. —."

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained from the County Engineers Office, upon receipt of two dollars ($2.00) for each contract, which amount will not be refunded.

Make checks payable to the Levy Court of New Castle County.

LEVY COURT OF NEW CASTLE COUNTY
BY: JOHN TAYLOR
COUNTY ENGINEER

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3950) will be received at Kennewick, Washington, until June 11, 1953, for furnishing labor and materials for Chandler Power and Pumping Plant and appurtenant works, Kennewick Division, Yakima Project, Washington. Location near Prosser, Washington. Principal items are: 105,000 cu. yds. excavation; 11,700 cu. yds. concrete; furnish and install structural steel, building materials, and miscellaneous metalwork; furnish and install steel-pipe or concrete-conduit penstocks, pump intakes, and discharge line; install gates, hoists, crane, and embedded parts of power and pumping equipment; and other work. Completion time 930 days. For particulars, address Bureau of Reclamation, Kennewick, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary for Water and Power Development
Department of the Interior

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3946) will be received at Rock Springs, Wyoming, until June 2, 1953, for furnishing labor and materials for Prospect Diversion Dam and Canal, Eden Project. Location 35 miles northeast of Farson, Wyoming. Principal items are: Excavation for dam & for canal, 42,600 cu. yds.; concrete in structures, 250 cu. yds.; furnishing and erecting timber, 8.2 Mbm; furnishing and laying 18- and 36-inch diameter concrete culvert pipe, 265 lin. ft.; furnishing and installing metal slide gates, 3,000 lbs.; and other work. Completion time 160 days. For particulars, address Bureau of Reclamation, Rock Springs, Wyoming; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary for Water and Power Development
Department of the Interior

Official Proposals Columns

of ENGINEERING NEWS-RECORD

are MUST reading, each week, for contractors, engineering-construction companies, equipment and materials manufacturers, all over the United States.

. . . and used regularly for over 50 years by government, state, county and municipal departments for advertising bids.

Official Proposal Division
ENGINEERING NEWS-RECORD
New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: May 19, 1953

Bronze Venturi Meters Contract 422

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, May 19, 1953, for Contract 422, for furnishing, testing and delivering two 60-inch by 42-inch, one 20-inch by 12-inch and one 16-inch by 12-inch bronze nozzle type Venturi meters, instrument assemblies, bronze castings, electric cables and appurtenances for the Downsville release water chamber and the Neversink intake chamber of the Delaware system, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of ten thousand dollars ($10,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($500) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($400) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: May 26, 1953

Contracts SD-39, 46, 49, 50

SEALED PROPOSALS will be received by the President of the Levy Court of New Castle County, Room 134-A, Public Building, Wilmington, Delaware, until 11:00 A.M. Daylight Saving Time, on May 26, 1953 and at that time publicly opened for contracts involving the following approximate quantities:

CONTRACT SD-39
DUROSS HEIGHTS

Lump Sum Clearing & Grubbing
10,000 C.Y. Excavation
400 C.Y. Borrow Pit Stripping
9,000 C.Y. Selected Borrow
2,400 Tons Hot-Mix Asphaltic Concrete
4,600 Gal. R. C. 1 Tack Coat
9.0 C.Y. Cement Conrete Pavement
25.0 C.Y. Cement Concrete Masonry
475 Lbs. Reinforcing Steel
350 L.F. 15" R. C. Pipe
54 L.F. 24" R. C. Pipe
54 L.F. 30" R. C. Pipe
57 L.F. 36" R. C. Pipe
63 L.F. A.C.C.M. Pipe Arch
16 Gauge (22" x 12")
60 L.F. A.C.C. Pipe Arch
16 Gauge (25" x 16")
110 L.F. A.C.C.M. Pipe Arch
14 Gauge (29" x 18")
100 L.F. 4" Vit. Clay Pipe
310 S.Y. Cement Concrete Gutter 6"
1 Each Catch Basin, Type PW
3 Each Catch Basin, Type B
1 Each Catch Basin, Type Special
1 Each Special Junction Box
1,640 Lbs. Castings
0.7 Acres Seeding & Mulching
950 S.Y. Sodding
120 L.F. 6" Perforated Corrugated Metal Pipe Underdrain

CONTRACT SD-46
McDANIEL HEIGHTS
Nichols Avenue

830 C.Y. Excavation
840 T. Selected Borrow
600 T. Waterbound Base Course
250 T. Hot Mix Asphaltic Concrete
400 Gal. Tack Coat (R.C. 1)
1 C.Y. Cement Concrete Masonry
38 S.Y. Cement Concrete Gutter
1560 L.F. Integral Concrete Curb & Gutter
700 S.Y. Topsoil
0.15 A.C. Seeding
1 Each Adjust Manholes
1 Each Adjust Catch Basin
50 L.F. Delaying 12" R.C. Pipe

OFFICIAL PROPOSALS

35 L.F. 4" V.C. Pipe
16 L.F. 6' V.C. Pipe
26 S.F. 4' Concrete Sidewalk

McDANIEL CREST
CONTRACT SD-49
Orchard Drive

2050 C.Y. Excavation
1850 T. Selected Borrow
1400 T. Waterbound Macadam Base
520 T. Hot-Mix Asphaltic Concrete
900 Ga. R. C. I. Tack Coat
30 L.F. 4" V. C. Pipe
150 S.Y. Cement Concrete Gutters
3480 L.F. Integral Curb & Gutters
1950 S.Y. Topsoil
0.4 A.C. Seeding
3 ea. Adjust Manholes

CONTRACT SD-50
WOODCREST
Rochelle Avenue

420 C.Y. Excavation
480 T. Selected Borrow
345 T. Water Bound Macadam Base
135 T. Hot-Mix Asphaltic Conc.
4 C.Y. Cement Concrete Pavement
960 L.F. Integral Curb & Gutter
250 L.F. Cement Concrete Sidewalk
670 S.Y. Topsoil
0.14 A. Seeding
1 ea. Adjust Stone Monuments
2 ea. Adjust Manholes
232 gal. R.C.I. Tack Coat

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the County Engineer.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Suburban Development Contract No. —."

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained from the County Engineer's Office, upon receipt of two dollars ($2.00) for each contract, which amount will not be refunded.

Make checks payable to the Levy Court of New Castle County.

LEVY COURT OF NEW CASTLE COUNTY
BY: JOHN TAYLOR
COUNTY ENGINEER

Bids: June 16, 1953

Interceptor and River Crossing Sewers

OFFICE OF PURCHASING AGENT
CITY OF NASHVILLE, TENNESSEE
NOTICE TO CONTRACTORS
BIDS FOR PROJECT NO. 53-SD-1
NASHVILLE, TENNESSEE

Sealed proposals or bids will be received by the City Purchasing Agent of the City of Nashville, Tennessee, at Room 209 Courthouse-City Hall Building, until ten (10) o'clock A.M., on the 16th day of June, 1953, for furnishing of all materials, labor, tools, and appliances necessary for construction of the East Nashville Interceptor and River Crossing Sewers covering each of the following items:

1. Interceptor sewers tributary to the Jefferson Street Bridge river crossing.
2. Interceptor sewers tributary to the South Fifth Street river crossing.
3. Six reinforced concrete constructed Regulator Chambers.
4. River crossing sewers and structures for both the Jefferson Street Bridge and South Fifth Street river crossings.

Copies of the proposal, contract documents, plans and specifications, may be obtained from the office of Rice, Harwood and Clark - Bertrand Goldberg Associates, Architect-Engineers, 905 American Trust Building, Nashville, Tenn.

A charge of *TWENTY-FIVE—($25.00) DOLLARS* will be made for each set of contract documents, proposal, plans and specifications. Deposit will be refunded in full amount applicable to the first set obtained and returned by contractors submitting a bona fide bid. Deposit, less one-half principal sum thereof retained to cover cost of production and handling, will be refunded on all other sets returned within ten (10) days after opening of bids.

Each proposal or bid must be accompanied by a cashier's or certified check on

OFFICIAL PROPOSALS

a State or National Bank made payable to the City of Nashville, Tennessee, or a bidding bond executed by the bidder and a surety company authorized to transact business in the State of Tennessee, in the sum of not less than five (5%) per cent of the total amount of the bid. Said check or bond will be returned to the unsuccessful bidders as soon as contract has been awarded and to the successful bidder as soon as he has executed the contract and furnished the necessary bonds, and the same have been approved by the City Attorney and the contract has been executed by the City.

All bidders must be licensed contractors as required by Chapter 135 of the Public Acts of 1945 of the General Assembly of the State of Tennessee. Bidder's name and license number must be placed on the sealed envelope containing these documents.

All bids must be made out on proposal form bound in the specifications. No interlineations, additions or deletions shall be made in the proposal form by bidder. The proposal form must not be detached from the specifications.

The City of Nashville, Tennessee, through its Mayor, reserves the right to reject any and/or all bids, to waive any informalities in the bids received and to accept any bid, which, in its opinion, may be for the best interest of the City.

The City of Nashville, Tennessee
E. B. Smith,
Purchasing Agent.

Bids: July 11, 1953

Baghdad-Kirkuk Road

GOVERNMENT OF IRAQ
DEVELOPMENT BOARD
CONTRACT R/7 (1953)

The Development Board invites tenders from Civil Engineering Contractors for the construction of a new road 12 metres overall width and 7 metres wide carriageway over a length of approx. 155 Kms. between north of Tauq and the town of Diltawa.

The works include 3 sections of embankment formation over flat country (approx. 140 Kms.) and excavation and filling on a new alignment over the Injana Ridge (approx. 15 Kms.); stone foundations, haunching stones, 2 coat bituminous macadam; the construction of pipe culverts, mass and reinforced concrete small and medium span bridges; and all incidental works in connection therewith.

Duplicate copies of the Tender Documents may be obtained from the Directorate General of Contracts at the Development Board Offices, Southgate, Baghdad, on payment of Ten Iraqi Dinars. Drawings may be inspected during office hours at the Board's Offices, Baghdad.

Tenders must be accompanied by a preliminary deposit of ID.30,000 (Thirty thousand Iraqi Dinars) which must be paid in cash to the Directorate General of Accounts of the Board and the receipt issued for such payment must be attached to the Tender documents. Such cash deposit may be replaced by a letter of guarantee from any approved Bank in Baghdad.

Tenders must be submitted in sealed envelopes marked "Tender for Baghdad-Kirkuk Road" to the Secretariat General of the Development Board on or before 12 noon local time on the 11th July, 1953.

Tenders will be accepted from persons or firms who have had previous experience in works of a similar nature.

Tenders not submitted within the time specified or not accompanied by a receipt of the deposit or a letter of guarantee, and the certificate of membership of a Chamber of Commerce (if the Tenderer resides in a Liwa in Iraq where a Chamber of Commerce exists) shall be neglected.

The Board does not bind itself to accept the lowest or any tender.

Secretary General
Development Board

OFFICIAL PROPOSAL

RATE: The rate for Official Proposal Advertising is $1.50 per line (or fraction) per insertion.

COPY RECEIVED: up to Friday for issue out following Thursday subject to space open for last minute ads.

SEND COPY: to Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

OFFICIAL PROPOSALS

Bids: May 21, 1953

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 21st day of May 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson District Engineer, 353 Broadway, Albany, N. Y.				
Schenectady	M.T. 53-9	New York State Thruway—Mohawk Sect.—Sub. 1 (D. & H. R.R. and N. Y. C. R.R.)	0.37	9" Cem. Conc. Pavt. 2 @ 25' Wide=0.29 Mi. Grading & Drainage=0.06 Mi. Misc. Work=0.02 Mi. R.R. Sep. Plate Girder 228' R.R. Sep. Comp. I-Beam 189'	$59,000 Plans $15	$1,072,000
		DISTRICT No. 2				
		L. Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.				
Oneida	F.A.C. 53-12 F.A.S.H. 53-9 F.A.R.C. 53-40	Utica City: North-South Arterial (Horatio St.) Horatio St. Extension Deerfield Corners-Marcy Hill, S.H. 933 Project U-752(3)	2.71	Asp. Conc. Ty. 1A, OPT.=2.70 Mi. Misc. Work=0.01 Mi. Hy. Sep. Comp. I-Beam 130.4'	$60,000 Plans $15	1,065,000
		DISTRICT No. 4				
		E. G. H. Youngmann, Barge Canal Terminal, Rochester, N. Y.				
Genesee and Livingston	F.A.R.C. 53-39	Alexander-Canawaugus Pts. 4, 5, 6 & 6-A, S.H. 8471-8490-1957-8504 Project F-611(14)	12.20	Asp. Conc. Type 1A, Opt.	$35,000 Plans $10	608,000
		DISTRICT No. 6				
		J. H. Thomas, District Engineer, 30 West Main Street, Hornell, N. Y.				
Chemung	F.A.C. 53-13	Elmira City: Madison Ave. & Lake St. (E. Water St.-Linden Pl.) Project U-479(8)	1.02	Asp. Conc. Type 2A	$27,000 Plans $15	493,000
Steuben	F.C. 53-1	City of Corning: Monkey Run Conduit (Flood Control)	....	155' x 10.5' Concrete Conduit	5% of Bid Plans $10	308,565
		DISTRICT No. 7				
		R. W. Sweet, 444 Van Duzee St., Watertown, N. Y.				
St. Lawrence	F.A.R.C. 53-28	Elmdale-Gouverneur, S.H. 875 Project F-290(3)	0.57	Asp. Conc. Ty. 1A, Opt.=0.56 Mi., Misc. Work=0.01 Mi. 3 Span Thru Truss 310'	$25,000 Plans $10	424,000
		DISTRICT No. 8				
		J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	F.A.R.C. 53-33	Pawling Village, S.H. 5009; Pawling-Dover Town Line, S.H. 612; Dover Plains-Pawling Town Line, Pt. 2 S.H. 5326; Project F-350(21)	3.25	9" Cem. Conc. Pavt. 24' Wide	$50,000 Plans $15	947,000
		DISTRICT No. 9				
		F. W. Donovan, District Engineer, 71 Frederick Street, Binghamton, N. Y.				
Delaware	F.A.R.C. 53-42	Hancock-Long Eddy, S.H. 8464 Project F-502(14)	5.45	Bit. Macadam Type 1	$10,000 Plans $10	173,000
		DISTRICT No. 10				
		M. Goul, District Engineer, Montauk Highway, Babylon, L. I., New York				
Kings	F.A.B.Q.E. 53-1	Brooklyn Queens Expressway (Cont. 17) Project U-1066(13)	0.36	Retaining Walls, Paving Drainage, Landscaping & Misc. Work	$25,000 Plans $25	435,000
Suffolk	F.A.R.C. 53-38	Huntington Town Line-Farmingdale, Pt. 1, S.H. 1218 Huntington-Amityville Pt. 1, S.H. 794 Project AU-297(2)	2.95	9" Cem. onc. Pavt. 2 @ 25' Wide=2.86 Mi. Asp. Conc. Ty. 1A, Opt.=0.09 Mi.	$67,000 Plans $15	1,233,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: June 17, 1953

Construction of Intercepting Sewers

NOTICE TO BIDDERS

Sealed proposals for furnishing materials and doing all work required for the construction of Intercepting Sewers and Sewage Treatment Works in the City of Jersey City, N. J. will be received by the Jersey City Sewerage Authority in Room 15 of the City Hall, Jersey City, N. J. at: 7:30 P.M. June 17th 1953 at which place and time they will be publicly opened and read.

The project includes Intercepting Sewers with Intercepting Chambers on the East and West Sides of the City with Pumping Station and Sedimentation Tanks on the East Side and Operating Building including Low Lift Pumps, Dual Fuel Engines and Generators and Vacuum Filters; Administration Building; Sedimentation Tanks and Sludge Digestion Tanks on the West Side.

Separate or combined proposals will be received on the Ten Divisions of the work, as follows:—

Contract A. West Side Intercepting Sewer and Sewage Treatment Works.

Contract B. East Side Intercepting Sewer and Sewage Treatment Works.

Contract A-B. West Side and East Side Intercepting Sewers and Sewage Treatment Works.

Contract C-1. Plumbing Work—West Side Sewage Treatment Works.

Contract C-2. Plumbing Work—East Side Sewage Treatment Works.

Contract C-1-2. Plumbing Work—West and East Side Sewage Treatment Works.

Contract D-1. Heating and Ventilating—West Side Sewage Treatment Works.

Contract D-2. Heating and Ventilating—East Side Sewage Treatment Works.

Contract D-1-2. Heating and Ventilating—West and East Side Sewage Treatment Works.

Contract E-1. Electric Work—West Side Sewage Treatment Works.

Contract E-2. Electric Work—East Side Sewage Treatment Works.

Contract E-1-2. Electric Work—West and East Side Sewage Treatment Works.

Contract F-1. Structural Steel and Miscellaneous Iron Work—West Side Sewage Treatment Works.

Contract F-2. Structural Steel and Miscellaneous Iron Work—East Side Sewage Treatment Works.

Contract F-1-2. Structural Steel and Miscellaneous Iron Work—West and East Side Sewage Treatment Works.

In accordance with Section 40:50-5 of the Revised Statutes of the State of New Jersey, bidders will be required to furnish a financial statement and complete questionnaire on the form issued by the Authority, to establish the bidder's financial standing, experience and ability to perform the work. No questionnaire will be received by the Authority after May 20, 1953. Within seven (7) days after submission of the financial statement, if approved by the Sewerage Authority, bidders will be furnished plans and specifications on deposit of $150 each for Contracts A and B and $75 each for Contracts C-1, C-2, D-1, D-2, E-1, E-2, F-1 and F-2.

Forms of questionnaire and plans to qualified bidders shall be obtained at the office of the Jersey City Sewerage Authority, City Hall, Jersey City, N. J. The deposit will be returned to bidders who submit bids and return the plans in good condition within one month after bids are received.

A certified check or bank draft payable to the Secretary of the Jersey City Sewerage Authority in the amount of 5% of the bid shall be submitted with each bid.

Each proposal must be also accompanied by the appropriate surety's consent, by a surety company qualified to do business in the State of New Jersey, binding itself to become surety for the full and faithful performance of the contract in an amount equal to 100% of the contract price for the protection of all persons furnishing materials or labor for fulfilling this contract in accordance with R.S. 2:60-207 etc.

The check or bank draft delivered with the proposal as aforesaid shall be returned to all unsuccessful bidders upon the award of the contract to the successful bidder.

All proposals must be submitted to the Secretary of the Jersey City Sewerage Authority at the time specified in the advertisement for proposals. None will be accepted by mail nor will any proposal be received subsequent to the time specified in this advertisement.

No bid shall be withdrawn for a period of sixty (60) days subsequent to the opening of bids without the consent of the Jersey City Sewerage Authority of the City of Jersey City.

The Jersey City Sewerage Authority reserves the right to reject any or all bids and to waive any informality in the bids.

JAMES A. TUMULTY, Jr.
Secretary
Jersey City Sewerage Authority

Dated April 22, 1953

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

$1.50 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.
POSITION WANTED and Individual Selling Opportunity Wanted undisplayed rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.
SEND NEW ADVERTISEMENTS to N. Y. office, 330 W. 42nd St., N. Y. 36, for May 28th issue, closing May 18th

Replies are forwarded each day as received at each of the offices mentioned without additional charge.
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

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The advertising rate $17.10 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col. 3 col.—30 inches to a page. E.N.R.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

(Additional Position Vacant Advertisements on the opposite page)

WANTED GENERAL Foreman or Superintendent in Philadelphia and vicinity. Must be experienced in cofferdam and concrete outfall and reconstruction of sewers. State salary, experience and when available. P-7651, Engineering News-Record.

ESTIMATOR—PERMANENT position in Central New Jersey experienced on Miscellaneous Steel and Plate Work. Advise qualifications, past employment and salary expected. Write P-7670, Engineering News-Record.

STRUCTURAL STEEL Designer wanted by a leading Middle West Fabricator—Experienced on industrial and commercial building. Permanent position and excellent opportunity with a large and established and growing company. Please state qualifications, past experience and salary requirements. P-7802, Engineering News-Record.

TEACHING POSITION—Engineering graduate, Industrial and teaching experience desirable. Opportunity to work on advanced degree. Salary depends upon qualifications. Write: Head, Department of Engineering Drawing, Iowa State College, Ames, Iowa.

TRANSIT MAN—For inside and outside work. Must have thorough knowledge of engineering, drafting and calculating, and be thoroughly familiar with deed and conveyance work, and tax maps. Apply—Howard Madison, Township Engineer, 1 Main Street, Woodbridge, N. J. Phone Wo 8-1200, Extension 7.

CHIEF OF Party—Must be capable of handling survey parties and have thorough understanding of survey work pertaining to rights of way, curb and street line, sanitary and storm sewer surveys, and a thorough knowledge of general survey work. Apply—Howard Madison, Township Engineer, 1 Main Street, Woodbridge, N. J. Phone Wo 8-1200, Extension 7.

ENGINEER, TEXAS Manufacturer needs young sales and design engineer, also mechanical draftsmen familiar with crushing, screening, washing and cement machinery. Excellent opportunity in well established company. Write Box 1369, Dallas, Texas.

ENGINEER OR Architect as Resident on Gov't job. Thoroughly experienced man with Contractor experience. Job 40 miles from Baltimore. Write full details. Good pay for right man. P-7841, Engineering News-Record.

SALES MANAGER: Fine opportunity for right man with substantial company engaged in construction equipment field. To qualify must have experience in all branches of sales management including initiating product improvement and new products programs, directing field sales organization, building sound distributor organization and some knowledge of advertising and market forecasting. Send full particulars covering experience, education, etc., to P-7852, Engineering News-Record.

MUNICIPAL ENGINEER, with experience in design and construction of sewers. Must be registered in Ohio or able to obtain registration. Starting salary $5,000-$6,000 depending upon experience. Send resume of experience and qualifications and photographs if available to City Engineer, 500 Municipal Building, Dayton, Ohio.

ENGINEER COLLEGE Graduate in Civil Engineering wanted for work in Ohio. Work involves job investigating and estimating. Write giving experience and employment history. Western Contracting Corp., 400 Benson Bldg., Sioux City, Iowa.

WANTED

Men to sell heavy construction machinery in the metropolitan New York area.

Salary - Commission - Expenses

Must have an engineering or mechanical background or practical selling experience in construction equipment.

Prefer ages from 27 to 35 years, metropolitan New York residence.

Call: NEwtown 9-7777, extension 11 for an appointment.

THE JAEGER LEMBO MACHINE CORP.
Northern Blvd & 127th Street
Flushing 52, L. I., N. Y.

CONCRETE PIPE SUPERINTENDENTS
CAST SUPERINTENDENTS

First class opportunity with a financially well-established national organization. Require high calibre, experienced men who can supervise manufacturing operations, take complete charge of large field projects.

P-7707, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SELLING OPPORTUNITY OFFERED

SALES ENGINEERS—Several territories in Mid-Atlantic States with established National concern selling prefabricated metal products to engineering and construction markets. Positions offered are permanent and present excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. RW-7778, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

EXPERIENCED ARCHITECT'S Superintendent available June 1st desires position within 100 mile radius of Philadelphia, Pa. PW-7525, Engineering News-Record.

CONSTRUCTION EXECUTIVE: 47, New York Registration, with wide experience in planning, coordinating and directing the construction of industrials, public works and transportation facilities for contractors and engineers in a management capacity, is interested in a career job within the continental U. S. PW-7824, Engineering News-Record.

CH. CONST. Eng. Registered, 20 yrs. exp. heavy construction. Estimating, planning, buying and supervision. PW-7198, Engineering News-Record.

CONSTRUCTION EXECUTIVE Lic. Engr. NY qualified journeyman 5 trades. Completely qualified in take-off, cost analysis, bidding designing, advanced preparation, with field and office supervision on Bridges, industrial and general construction. PW-7894, Engineering News-Record.

COLL. GRAD., Female, Math. major, Phi Beta Kappa, knowledge French-Spanish, Steno. $65. LO-8-1032.

(Continued on the opposite page)

ENGINEERS - GEOLOGISTS

Technicians Experienced in Soils—Concrete and Asphalt Control Work.

Also

Graduate Engineers with P.E. Registration having extensive experience in Soils—Concrete and Asphalt. Location in Midwest.

P-7790, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DAM ENGINEERS, experienced in the design and construction of earth dams, preferably with a working knowledge of soil mechanics, concrete control, and hydrology for the preparation and review of plans and specifications. Duties will include report writing, field investigations and inspections. Some travel and public relations.

HYDRAULIC ENGINEERS with minimum of three years experience in hydrology and hydraulics of water control structures and waterways.

CONSTRUCTION ENGINEERS. One to supervise concrete control and inspection on channel improvement project involving above 9000 cubic yards of concrete. Field experience in concrete construction required. Two to supervise contract inspection on channel improvement and levee construction projects. Field experience in earth construction required.

LOCATION. Pennsylvania. Give full details of experience, education, age, salary expected and references.

ADDRESS replies to

P-7765, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

URGENTLY NEEDED

OPENINGS FOR EXPERIENCED

MECHANICAL, ELECTRICAL, AND CIVIL ENGINEERS

Have Large Volume of Private and Defense Work. Salaries Commensurate With Ability.

WELL ESTABLISHED FIRM

HOME OFFICE — ROANOKE, VIRGINIA
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Write Giving Full Information or Call Collect
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HAYES, SEAY, MATTERN & MATTERN
ARCHITECTS & ENGINEERS
ROANOKE, VIRGINIA

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

REINFORCING STEEL DETAILERS

Experienced. Old established Los Angeles fabricator. Permanent, many benefits. Send qualifications to

P. O. Box 4858 Florence Branch, Los Angeles 1, California.

STRUCTURAL DESIGNER

for Floating Equipment
Piers and Dry Docks

Applicant will be required to make surveys and reports. This is a permanent position with a leading company. Our employees know of this advertisement. Send brief resume of experience.
P-7868, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED
GENERAL SUPERINTENDENT

Qualified to take charge of field operations in industrial building department with General Contractor operating in the Southeastern States. Annual volume of business in excess of 25 million. Applicant must be a graduate engineer with good personality, able to conduct business with clients and have successful record as superintendent on heavy industrial construction and installation of equipment, with experience on Pulp and Paper Mills, Cement and Fertilizer Plants. Excellent salary.

P-7631, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SUPERINTENDENTS
with substantial experience in
CONCRETE PIPE PRODUCTION

Nationally known producer of concrete pipe offers several exceptional permanent positions to experienced field men capable of supervising manufacture of concrete pressure and non pressure pipe throughout the United States. Also several openings for top-notch master mechanics preferably with previous experience on pipe machinery.

This reputable, well established Company is prepared to offer to the right men lifelong secure positions, unparalleled opportunities for growth, personal recognition for individual accomplishments, generous company benefits in addition to high starting wages.

Only men eager and able to get results need apply.

P-7597, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

JR. CIVIL ENGINEERS
FOR CALIFORNIA

Permanent positions in California's huge highway program. Wide choice of locations. High-grade professional experience. Open to CE graduates or to non-graduates with 2 years' experience. $358 to start, raise in six months.

STATE PERSONNEL BOARD
1015 L Street Sacramento 14, Calif.

RESIDENT ENGINEER

To be responsible head of field organization for supervision of construction of large vertical lift bridge in Western New York. Must have experience on movable bridges. Immediate availability desirable. Salary open. Submit complete resume of training, experience, qualifications, and references so that appointment for personal interview can be arranged.

Box 473 BUFFALO 5, NEW YORK

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-third year. Write today.*

WILSON *Engineering Corp.*

College House Offices—HARVARD SQUARE, CAMBRIDGE, MASS.

SUPERINTENDENTS AND PROJECT MANAGERS TRAINING COURSE

All instructions by mail. Send today for sample lesson and complete details

Geo. E. Deatherage & Son, Dept. 101
411 S. 5th Ave. Lake Worth, Florida

POSITIONS WANTED
(Continued from opposite page)

SUPERINTENDENT: 30 years experience on Turnpikes, bridges, grade separations, conc. pavement, sewer and water treatment plants. Sober and cost conscious. PW-7851, Engineering News-Record.

ENGINEER - ESTIMATOR. Civil Engineer Grad., Age 34. Have 10 years field and estimating experience in buildings and heavy construction. Desire position as estimator in established firm. PW-7737, Engineering News-Record.

CAMP STEWARD, a practical man, has been trained as cook, baker, chef and steward. 58 years of age, single, strictly sober. Working at present but wish a change. PW-7753, Engineering News-Record.

PROJECT MANAGER with 20 years experience on power plants, water treatment plants, heavy industrial buildings and water front work. Will accept either foreign or domestic assignment. Excellent references. Available short notice. PW-7777, Engineering News-Record.

POSITION WANTED. Superintendent, 25 years construction experience, bridges, dams, treatment plants, pumping stations, concrete structures, sewer and water systems, heavy excavation, water front work, etc. Just off eleven million dollar warehouse job. Good organizer, know men and equipment. Familiar with labor and material costs and distribution. Reference upon request. Any location. Available immediately. PW-7022, Engineering News-Record.

ENGINEER—CIVIL, with some training in M.E. and accounting; presently a 2nd year law student. Young, willing to learn. Veteran; construction my first interest, but have inquiring mind. Try me out this summer, and if you are satisfied of the need in your organization for one with these somewhat unique qualifications, we might arrange future, but you are not obligated. PW-7793, Engineering News-Record.

GENERAL SUPERINTENDENT — Graduate Engineer-Estimating, bidding, field supervision. Commercial, industrial and residential buildings. Presently employed, desire change. PW-7684, Engineering News-Record.

CIVIL CONSTRUCTION. Irrigation & Drainage Engineer-Graduate Engineer. Thirty-five years diversified and progressive experience in technical administration, planning, investigation and supervision over heavy construction works. Recently completed foreign assignment investigating a project in Central America. Interested in position with major construction company or consulting engineering firm. PW-7685, Engineering News-Record.

CHIEF AUDITOR — Assistant Controller — Twenty-five years experience on large heavy, industrial, ordnance, atomic, cost plus and other type construction projects. Executive ability to organize joint ventures, cost plus, finances, subcontracts and costs any size project. Top references and bond, now employed, available inside thirty days. PW-7658, Engineering News-Record.

ESTIMATOR GENERAL Construction, 37, Registered Architect, Licensed Engineer. 2 years architectural experience, 3 years field construction, 3½ years U.S.A. Corps of Engineering, Officer, 7 years estimating, purchasing and supervision. Presently employed. Desire greater opportunities for advancement. PW-7844, Engineering News-Record.

STRUCTURAL ENGINEER, 31, married, BSCE, registered. Presently structural designer Arch-Eng. firm. Desire to relocate for permanent position. Minimum salary $5700. PW-7843, Engineering News-Record.

G.E. GRAD., SINGLE, knowledge of German, 10 yrs. of diversified exp. in design, field, cost and estimating. Free to travel anywhere, no relocation. Interested in sales representation, instructing. Make offer. References. PW-7858, Engineering News-Record.

POSITIONS WANTED

MECHANICAL ENGINEER desires foreign employment in Europe or Latin America. Age 34, married, one child. Previous Latin American experience. Spanish speaking. 15 years heavy experience in power, mining, construction. Presently employed by large construction firm. Available on short notice. Excellent references. Inquiries invited. PW-7842, Engineering News-Record.

CIVIL ENGINEER, B.S. in C.E., P.E. Age 30. Six years experience design of oil refinery and chemical plant buildings, plant sewerage systems. Layout of R.R. tracks. Desires position offering progressively increasing scope and responsibility. New York area preferred. PW-7863, Engineering News-Record.

PIPING ENGINEER, M.E. Registered, 20 yrs. exp. in design and const. supervision in power, oil and process field desires responsible position with sound West Coast organization. PW-7871, Engineering News-Record.

ENGINEER—N.Y. and Mass. licenses. Heavy and architectural construction supervision; chemical plant erection, maintenance and operation; extensive administrative, design, and sales experience. Position accepted must demand imagination and responsibility. PW-7872, Engineering News-Record.

CONST. ENG.—Ass't. Supt. Grad. C.E. Reg. N.Y. 9 yrs. exp. power plants and ind. const. PW-7881, Engineering News-Record.

ENERGETIC YOUNG Civil Engineer with excellent background and experience record is seeking a position as Chief Engineer on a major project involving both design and construction. Prefer foreign assignment. PW-7869, Engineering News-Record.

C.E., 10 YRS. exp.; supervision, inspection, design: water, sewerage, highways, hydraulics, etc. Desire position of responsibility with contractor or consultant, southwest or west. Salary $6,000 to $8,000. PW-7886, Engineering News-Record.

SENIOR DRAFTSMAN, over 15 years experience in Municipal Work. Can you use me? PW-7891, Engineering News-Record.

EXECUTIVE CONNECTED with large engineering department seeking permanent post. Responsible for budget, engineering accounting, cost controls, administrative procedures, and management reports. Also, planning and economic analyses for construction, operation and maintenance. Salary $13/15,000. Charles Johnson, 194-01 C 64th Circle, c/o Apartment 1 A, Fresh Meadows, N. Y.

PART TIME WORK WANTED

STRUCTURAL ENGINEER, licensed, 25 years buildings, foundations, industrial plants, waterfront structures, desires part time work. PTWW-7709, Engineering News-Record.

TAKE-OFF MAN, grad. engin., living N.Y.C., wants work part time at a Consultant Engineer's or Estimator's. PTWW-7897, Engineering News-Record.

WORK WANTED

PRELIMINARY INVESTIGATIONS, studies, reports, field engineering, and design for highways, railroads, industrial development in foreign countries. Fee basis or contract. WW-7870, Engineering News-Record.

BUSINESS OPPORTUNITY

Active Civil Engineering and Surveying Practice for sale to competent party. Fast growing central Florida coastal city. Vicinity population 50,000. Office, Records and equipment complete. Owner must retire account health. BO-7696, Engineering News-Record.

WANTED

2000 lin. ft. to 3000 lin. ft. of 15" concrete paving forms. Also ½ to ¾ yard truck crane. Would like to rent with option to purchase. Guarantee minimum of 5 months.

W-7779, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Used — Immediate Delivery

International TD-24 Tractor with Bucyrus-Erie Cable Bulldozer
Late Model—Reconditioned and Guaranteed

CAT. D-4 with hyd. Bulldozer
BROWNING T15 Motor Crane
CAT. D-4 Tractor with Loader
HOUGH HAH 15 cu. ft. Payloader
HOUGH HF ¾ yd. Payloader
HOUGH HFH ¾ yd. Payloader
INT. TD-9 B-E hyd. Bulldozer
INT. TD-14 Isaacson hyd. Bulldozer
INT. T-14 Isaacson hyd. Bulldozer.
INT. TD-18 B-E hyd. & cable Bulldozer
LaPLANT-CHOATE 8 yd. Scraper
LINK-BELT HC-70 Motor Crane
LORAIN L-41 Crawler Crane
LORAIN L-50-I Crawler Shovel
NORTHWEST 105 Crawler Crane
NORTHWEST #2 Crawler Crane & Hoe

UNION, N.J. U.S. 22 Unionville 2-7400

EHRBAR SINCE 1903

WESTBURY, L.I. JERICHO TPK. Westbury 7-5000

29 MESEROLE AVENUE

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LOCOMOTIVE CRANE: Link Belt 25 ton capacity, standard R.R. gauge, gasoline powered, cast steel trucks, air brakes, with or without 1¼ yd. Williams clam shell bucket, thoroughly modern, excellent condition. Located Minnesota. For sale or rent.

AIR SEPARATORS: One Sturtevant and one Bradley 16 ft. with motors and drive.

DRAGSCRAPER: Sauerman 1-½ yd. capacity, 60 H.P., 440 volt, complete.

BUCKET: Blaw Knox type W730, 2½ yd. clam shell, new condition.

DIESEL MOTOR: Caterpillar D13000 portable on skids, 122 H.P.

HOIST SPECIALS: 1—Single drum, all steel, 10' dia., 6' face, 1¾" rope, 600 FPM, 900 H.P., 82,000 lbs. working load. 1—Double drum 10' dia., 1200 ft., 1⅞" rope, 1400 FPM, 1200 H.P. 1—Vulcan, double drum, 200 H.P., 8' dia., 4' face, one drum clutched. 1—Single drum 250 H.P., 5'6" dia., 46" face, 1-¼" rope. All the above with all auxiliary equipment. Other Hoists 100 H.P. to 1050 H.P., single and double drum, with electrical equipment.

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A. J. O'NEILL
Lansdowne, Pa.
Phila. Phones: MAdison 3-8300—3-8301

CONCRETE DAM BUILDING EQUIPMENT

LOCATED AT MOUNT MORRIS, NEW YORK

1—25 Ton Lidgerwood Cableway, with 500 HP electric hoist, Ward-Leonard control, 52' traveling tail tower, fittings for fixed head tower, carriage, hoist block and 3" track cable for 1700' span.

2—8 cu. yd. Garbro 2 compartment concrete buckets.

20—Chicago Pneumatic Model 518 2-man concrete vibrators.

1350 Lineal feet Blaw-Knox cantilever steel forms for 5' lifts.

3—G-E 1000 KVA Transformers, 13,200/2300v., complete with substation switchgear.

All above in excellent condition

SUBJECT TO PRIOR SALE

Contact

THE ARUNDEL CORPORATION

Pier 2 Pratt Street

Baltimore 2, Maryland

FOR SALE

LIMA "PAYMASTER" DRAGLINE with caterpillar 318 Diesel Engine—Wide & Long Crawlers—Yaun 1 Yd. Dragline Bucket—S/N 325500. 2½ yrs. old. Bargain at $11,500.

MARION 33-M DRAGLINE, with GM 371 Diesel, Wide & Long Crawlers, 40 ft. boom, Yaun 1 Yd. Dragline Bucket. 3 yrs. old. Good Condition. Price, $12,000.

UNIT 614 Backhoe, with GM 271 Diesel Engine. One year old. Like new. Price, $11,500.

TRUCK CRANE—P & H ½ Yd. mounted on heavy-duty Mack Truck. Good rubber—good condition. Price, $7,200.

Priester
MACHINERY COMPANY, INC.
149 South Third St. Memphis, Tenn.

FOR RENT

New Model 3500 Speederane, dragline, clamshell and lifterane, 60-ton capacity.
New Ingersoll Rand 600' Gyro-Flo Air Compressor.
New Lorain Truck Crane, 25 Ton capacity.

FOR SALE OR RENT

Marion 392 and Koehring 803 dragline, clamshell, lift crane and pile driver combinations. McKiernan-Terry S-5 and 11B-3 Pile Hammers.

Reply to:

Clemens Construction Co.
P. O. Box No. 266, West New York, N. J.

FOR SALE

New Wire Rope Blocks

12" Snatch Blocks with Hooks	$13.50
14" Snatch Blocks with Hooks	18.50
16" Safety Snatch Blocks with Shackles	20.00
14" Double Blocks with Shackles	13.00
18" Single 20 Ton with S. Shackle	25.00
18" 3-Sheave 30 Ton with Shackle	50.00
18" 4-Sheave 30 Ton with Shackle	75.00
#32 Drop Forge Hooks, New	2.00

ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.

FOR SALE

NEW CONCRETE POLES

For Street Lighting—30' Long
Base 14½"—Top 7"

FRANK M. JUDGE & CO., INC.
7010 Empire State Bldg. N. Y. C.

---

3 DW-10 CATERPILLAR TRACTORS

With wagons, SN-1N-2925-6-7, all in very good condition, ready to go. All 3 for $20,000.00.

MERTES MACHINERY CO.
1622-So. 1st St., Milwaukee 4, Wis.

ASPHALT & OIL TANKS

IN MO.—TEX.—N. Y.—FLA. & LA.
33—8000 & 10,000 GAL. R. R. TANK CAR TANKS.
6—HORIZ. 15,000 & 20,000 GAL.
9—VERT. 15,000, 42,000, 120,000 GAL.
LESTAN CORP., ROSEMONT, PA.

FOR SALE

GUY DERRICK

100 ft. latticed steel mast, 90 ft. latticed steel boom.

M. B. Markland Contracting Co.
Atlantic City, N. J.

EQUIPMENT BARGAINS

Largest Inventory in Rocky Mountain Empire. One of the West's most modern and complete equipment repair shops.

All Items are Below Present Ceiling Prices

1—Cat D7 Diesel Tractor with LeTourneau DD CCU and Cat 7S Dozer. Rebuilt and guaranteed $8500.00

1—Cat D7 Diesel Tractor with LeTourneau DD CCU and LeTourneau 7A Dozer. Rebuilt and guaranteed..... $8250.00

1—Cat D8 Diesel Tractor with LeTourneau DD CCU and LeTourneau 8S Dozer. Good working condition..... $4500.00

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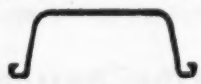

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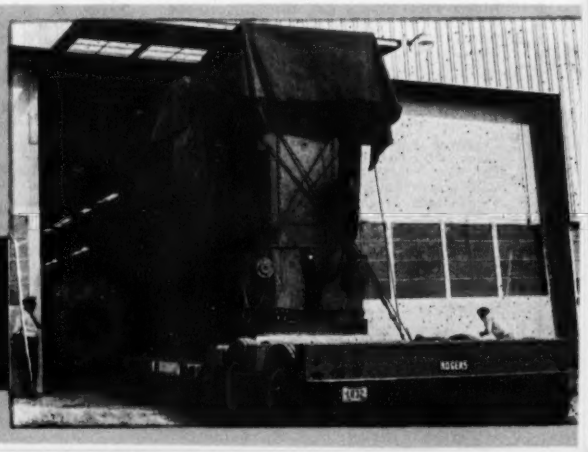

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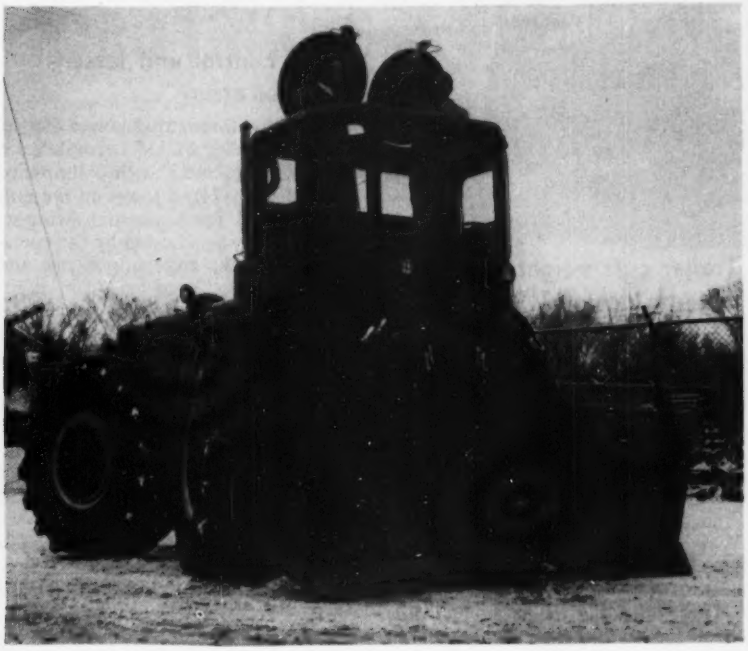

Heavy-duty tractor bulldozer tested

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The vehicle is 11 ft 7½ in. high, 22 ft 9 in. long, and is equipped with an 11-ft wide dozer blade. Total weight with dozer blade and rear cable unit for scraper operation is 51,300 lb.

Despite its huge size, the Bull Moose is reported to be highly maneuverable. Four-wheel hydraulic power steering permits control of both sets of front and rear wheels simultaneously or independently. If required, all four wheels could be turned to the same angle and the unit would "crab" sideways in that direction. The tractor can also be steered by braking.

Power is provided by a 300-hp Cummins diesel engine, and the drive mechanism is of the four-wheel type with the front and rear wheels on each side geared together. A torque converter and semi-automatic transmission are other drive features.

The tractor is designed to operate in temperatures as low as 65 deg below zero. To meet such conditions the tractor has enough heaters under the hood to heat three five-room houses in a moderate climate. For operator comfort a heater is also installed inside the cab.

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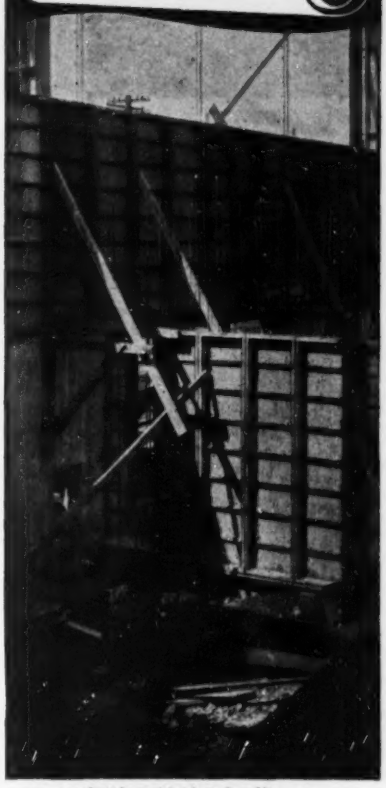

Finkl Forged Products Co., Chicago
E. L. Hallbauer, G. C

Symons Forming System—a rapid, cost saving means of concrete wall construction; adaptable to any class of construction from heavy industrial to small residential.

Symons' Engineering Staff is available to help you with your Forming problems. Form layouts and quotations are furnished without charge or obligation. Symons salesmen are qualified forming engineers and are available for on the job consultation regarding any problem of form erection, pouring and stripping.

Symons

SYMONS CLAMP & MFG. CO. Dept. E-3
4265 DIVERSEY AVE., CHICAGO 39, ILL.

Please send information on Symons Forms (enclosed are plans for form layouts and job cost sheets).

Name_____

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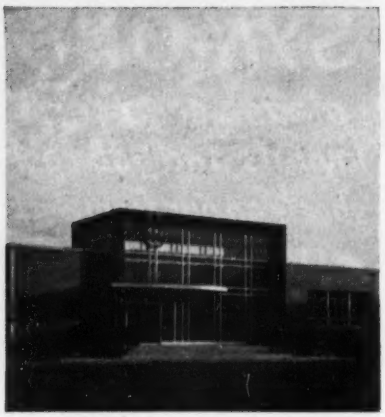

Ferguson

Research Laboratories...

SPECIALIZED TOOLS FOR INDUSTRY

• An industrial laboratory is a vital and complex tool—a modern, specialized facility that must be pre-planned and designed to obtain maximum efficiency and produce successful results.

Because of The H. K. Ferguson Company's specialized experience in designing, constructing and equipping research laboratories in practically all fields of industry, our engineers are qualified to provide attractive and functional research facilities.

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Trailer cuts weight to increase payload

Using a high-strength alloy steel throughout in the construction of this heavy-duty trailer has resulted in higher payload capacities with less dead weight, according to information from the manufacturer.

The trailer has an 8-ft x 3-ft platform with an overall length of 27 ft 7 in. from kingpin to extreme rear. Weight of the trailer is less than four tons and payload capacity is rated at 27 tons.

Designated the model R4TL Alloy Steel Trailer, the unit features a full oscillating tandem axle assembly mounted on neoprene for reduction of maintenance requirements.

The trailer is designed primarily for hauling equipment in the Caterpillar D8 weight class. MARTIN MACHINE CO., KEWANEE, ILL.

Power control unit lessens operator effort

A new rear-mounted power control unit, the Baker PCU-75, combines a multiple disc clutch with a simplified brake design. Hand levers on the unit are designed for horizontal swing-action and may be adjusted by the operator for length, angular position and height. The "hand load" is light, further to reduce operator fatigue.

The clutch is engaged with a lever travel of only 5 in., and the company says that fewer adjustments are required with the multiple disc design than with the usual design.

The brake system features simplified adjustment with tension changes made from one adjusting bolt. Total brake area is 147 sq. in.

Line speeds with the unit reach 710 fpm with full drum and 420 fpm with bare drum at 1700 rpm. Drum capacity is 225 ft x ½ in.

The unit is designed for use on Allis-Chalmers HD-15 and HD-20 tractors and other equipment of comparable horsepower. BAKER MFG. CO., SPRINGFIELD, ILL.

30-SECOND OPENINGS—Five tons of door swing up and out of the way in 30 seconds, according to the manufacturers. This horizontally pivoted door, 64x23 ft, has been developed for interceptor hangars where seconds count in getting aircraft into the air. The door's action is that of a balanced wheel rotating on an axle, and in the event of power failure, it may be opened in 90 seconds with a manual crank. The door conforms to USAF specifications. Luria Engineering Co., Bethlehem, Pa.

NOW! Completely new FORD TRUCKS for '53

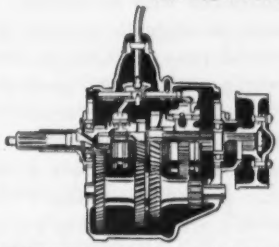
Scores of brand-new, TIME-SAVING features in the completely new Ford Trucks for '53 add a new dimension to truck economy. And you can choose from over 190 models in a greatly expanded line.

Ford Trucks are leaders in *low first cost* and *low running costs*. They last longer for *low ownership* costs. Now for '53, new TIME-SAVING features cut trucking costs still further.

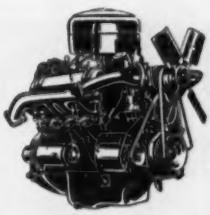
NEW 6½-FT. PICKUP box has new rigid, clamp-tight tailgate.

NEW "DRIVERIZED" CABS cut driver fatigue! One-piece curved windshield 55% bigger. I-REST tinted glass (extra cost). Wider seat with counter-shock seat snubber.

Deluxe cab shown in all illustrations



NEW SYNCHRO-SILENT transmissions for easier shifting—no "double clutching"—standard all models. New *Fordomatic* or Overdrive on F-100 at extra cost.



NEW LOW-FRICTION POWER in 3 overhead-valve engines—*Cost Clipper* Six, *Cargo King* V-8's. Five engines in all with famous Truck V-8 and Big Six.

NEW SHORT TURNING for better maneuverability. New wider tread gives 37° steering angle. New set-back axles shorten wheelbase, improve weight distribution without reducing capacity.

NEW SPRINGS! NEW BRAKES! Longer front and rear springs for easier ride, longer life! New self-energizing brakes for better control . . . double-cylinder type, rear, on Series 500 and 600.

Parallel frame rails for better service accessibility
New banjo-type hypoid rear axle
New steering geometry
New wider tread, set-back front axle

NEW TIME-SAVING FEATURES THROUGHOUT! All new . . . all the way! New fast controls and new power save truck time on the road . . . New service accessibility saves truck time in the shop.

BIGGEST FORD TRUCK ever built—new Ford Series F-900 has G.C.W. rating of 55,000 lbs. as a tractor and G.V.W. truck rating of 27,000 lbs.

Designed for today's hauling needs!

FORD *ECONOMY* TRUCKS

SAVE TIME! • SAVE MONEY! • LAST LONGER!

Good Drivers Drive Safe Trucks

FREE! MAIL THIS COUPON NOW!

FORD Division of FORD MOTOR COMPANY
P.O. Box 658, Dearborn, Michigan

Please send me without charge or obligation, complete details on new Ford *Economy* Trucks for '53!

FULL LINE ☐ HEAVY-DUTY MODELS ☐
LIGHT MODELS ☐ BIG JOB MODELS ☐
PARCEL DELIVERY ☐ CAB FORWARD MODELS ☐

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FRANKI
SPREAD FOOTINGS TO THE RESCUE!

Contractor John De Angelis tells how Franki Foundation Company helped him solve difficult soil problem and save 3 weeks in costly time.

● "A tough soil and water condition in Eastchester, N. Y. had me really licked," says John De Angelis, contractor of Tuckahoe, N. Y. "Had we continued with an ordinary foundation, as originally planned, the work would have required at least three weeks — even with a good site soil." "Thanks to Franki Pressure Injected Footings, we completed the job far more satisfactorily in a period of 4 days instead of 3 weeks. I wound up with a profit instead of a loss, and a very satisfied client . . . The Scarsdale Bus Company."

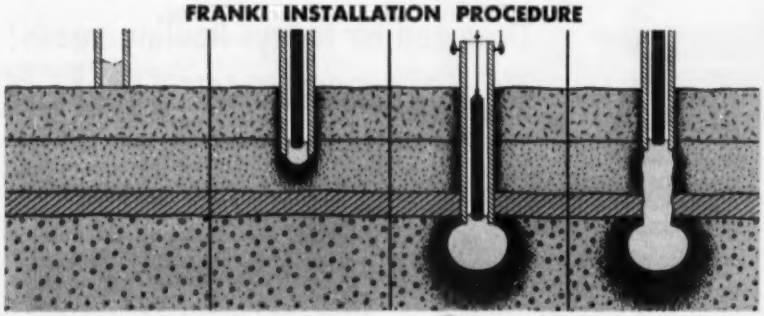
John De Angelis, Tuckahoe, New York

The above job is typical of many where Franki Pressure Injected Footings have "come to the rescue" to do the job better, and save time and money as well. William C. Stohldrier, Bronxville, New York, was the architect.

. . . LIGHTEN YOUR COSTS . . . INCREASE YOUR LOAD! . . .

Send for "Franki Facts" for complete information about the Scarsdale Bus Co. project — and an illustrated booklet describing the Franki Foundation method in complete detail. Write Franki Foundation Company, 114 East Fortieth Street, New York.

FRANKI INSTALLATION PROCEDURE

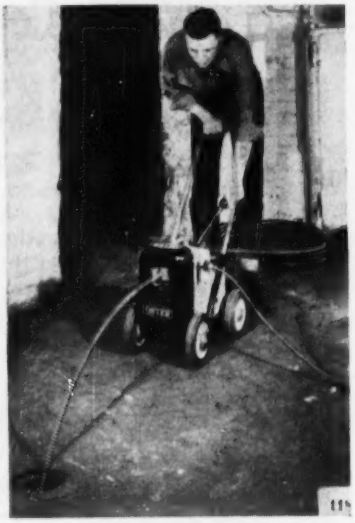


FRANKI FOUNDATION COMPANY

PITTSBURGH, PA.
NEW YORK, N. Y.

FIRM FOUNDATIONS FOR OVER FORTY YEARS

NEW PRODUCTS



Powered sewer snake for tough cleaning jobs

Weighing less than 100 lbs. and easily carried in the trunk of a car, Oster Manufacturing Co.'s new "Sewer Master" will clear obstructions more than 100 feet from the sewer entrance. In operation, cutting tools are attached to a coiled spring "snake" which is securely held and revolved at any convenient distance from the sewer entrance by revolving chuck jaws. Changing direction of rotation or controlling feed is easily accomplished by a set of controls on the machine. The power unit is equipped with four large rubber-tired wheels and a two-position handle for moving the equipment up and down stairs and to the job. Oster Manufacturing Co., 2057 East 61st Place, Cleveland 3, Ohio.

Electric tool kit fits and hangs 12 doors an hour

A set of electric woodworking tools and accessories is available for sizing and hinging doors and jambs. The model 112 Porter-Cable Kit is reported to size and triple-hinge all doors and jambs for the average house in less than two hours.

Automatic equipment in the kit includes a portable electric router and electric plane using an interchangeable motor, adjustable hinge-butt template and cutter sharpening attachment.

Both router and plane may be used in other phases of house construction and trim. PORTER-CABLE MACHINE CO., 15 EXCHANGE ST., SYRACUSE, N. Y.

(*Continued on page 177*)

LOOK JOE! for SPEED in Cutting *Any* Masonry Material

(and at the LOWEST possible COST per CUT)

CHOOSE A NEW... Clipper® MASONRY SAW

15 MODELS... PRICED FROM $265

HE'S CUTTING BRICK ...IN 4 SECONDS

Nearly 20 Years of Know-How *Backed by CLIPPER'S FREE TRIAL Policy*

Order a NEW Clipper TODAY . . . on FREE TRIAL. Discover for yourself how CLIPPER will increase your profits by increasing your production at reduced costs. CLIPPER'S "On the Job" FREE TRIAL guarantees satisfaction at no obligation.

A CLIPPER WILL PAY FOR ITSELF From the SAVINGS in Time and Material

Here's Why! The DUSTLESS Clipper operates right beside the masons and the Clipper is PORTABLE . . . easily moved from basement to roof. *ONE* Clipper Model HD with a Clipper Diamond Blade will do the cutting of *3 ordinary abrasive saws!*

MODEL HD

HE'S CUTTING TILE ...IN 12 SECONDS

FREE DEMONSTRATION

Call or write your nearest Clipper Factory Branch Office and a Clipper Specialist...whose ONLY business is Masonry and Concrete Cutting...will make an "on the job" demonstration of a Clipper Masonry or Concrete Saw

CLIPPER IS THE ONLY SAW IN THE WORLD that will Cut ANY Masonry Material Regardless of Size or Hardness

Do not purchase any Masonry Saw **unless it can be converted to Concrete or Track Sawing**...You never know when you may have to cut a narrow trench or patch in concrete or cut stone slabs or transite! Place the cutting head of your **DUSTLESS CLIPPER** on the **"CONVERTIBLE" CART** — And **you are ready to saw concrete or asphalt patches or trenches.** Then set the CART on TRACKS and operate as a TRACK SAW **on stone slabs or extremely large Masonry Units.**

SAW CONCRETE BEFORE BREAKING...

SAVE UP TO 50% in labor and material.

MODEL C-130 5 MODELS GAS OR ELECTRIC POWERED

Saw repair patches—gas, water, sewer and air line trenches in floors, streets, walks, runways and highways. Save too, by sawing contraction joints—eliminate costly hand forming and spalling.

HE'S CUTTING STONE ...IN 12 SECONDS

Investigate *TODAY!* THE NEW FASTER CUTTING *CLIPPER SUPERIOR BLADES!*

. . . guaranteed to "Consistently provide the Fastest Cut . . . . at the Lowest Cost . . . with the Greatest Ease!" Clipper alone can supply *all* specifications of Abrasive, Diamond and "CBR" (Break-Resistant) Blades to accurately meet your requirements. INVEST IN CLIPPER and YOU'LL GET RESULTS!

LOOK for the BRIGHT ORANGE COLOR and the TRADEMARK CLIPPER

Clipper®

SAME DAY SERVICE FROM YOUR NEAREST FACTORY BRANCH—

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- ☐ CLIPPER ABRASIVE BLADES ☐ WET ☐ DRY
- ☐ CLIPPER DIAMOND BLADES (94)

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

THE ENGINEER'S REPORT

DATA

LUBRICANT: RPM Wheel Bearing Grease

UNIT: Wheel Bearings-Passenger Buses

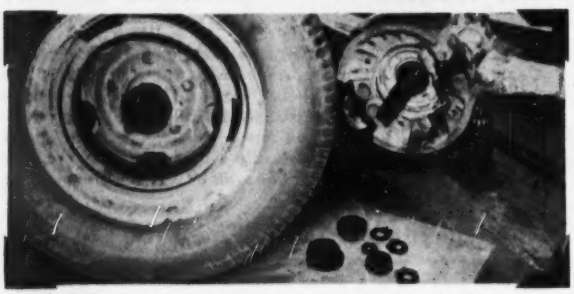
OPERATION: City Service

CONDITIONS: Continual shock loading — high temperatures

FIRM: Tanner Motor Tours of Nevada, Ltd., Las Vegas, Nev.

Heat-resistant grease ends wheel-bearing failures!

THIRTEEN PASSENGER BUSES like this, in city transit service in Las Vegas, Nevada, eliminated failures of inner wheel bearings by switching to RPM Wheel Bearing Grease. Other greases tried previously did not stay in inner bearings, resulting in many failures due to inadequate lubrication and heat. Wheel bearings in these buses are subjected to high temperatures almost continuously because of excessive stop-and-go operation and desert heat in this area. All the buses have seats for 27 passengers, but carry a capacity load of standing passengers during heavy-traffic hours.



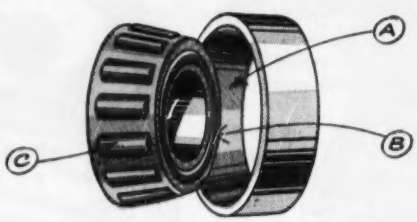
IN GOOD CONDITION AFTER 100,000 MILES, this bearing assembly from one of the buses was taken down for inspection and repacking with RPM Wheel Bearing Grease. Ernie Conger, Shop Superintendent, says, "RPM Wheel Bearing Grease is the only grease I've used that stays all through bearings in the tough conditions of our operation. It feeds to bearings readily, but does not leak out onto our brakes."

REMARKS: RPM Wheel Bearing Grease is made with high quality paraffin base oils and contains no harmful fillers. It maintains a correct and uniform consistency under all operating conditions and is stable in storage. To meet different weather conditions, it comes in both medium and heavy grades, and is easily applied either by grease gun or hand.

RPM

TRADEMARK "RPM" REG. U.S. PAT. OFF.

How RPM Wheel Bearing Grease protects bearings under all conditions



A. Provides a tough, resilient lubrication film that protects against heavy pounding and overload pressures.

B. Sticks tightly to all bearing surfaces ...feeds slowly and stays in smallest clearances.

C. Resists water and extreme heat...won't melt and run off onto brake linings.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso
THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

Insulation for metal-clad units sticks to the job

Employing special hangers, a new mineral wool-aluminum foil insulating material can be applied to practically all metal-clad buildings.

Threaded bolts are attached to the skin of the building with adhesive. Insulation blankets are laid over these bolts and secured in place with strap hangers.

No special tools or equipment are required for the installation; all the insulation and accessories are supplied by the manufacturer. SEALTITE INSULATION MFG. CORP., WAUKESHA, WIS.

Aluminum oxide plate aids oxidation of wastes

An improved aluminum oxide plate for activated sludge process sewage disposal is said to improve operating efficiency of large city plants up to 20 per cent.

The manufacturer claims that the new tile produces at desired air volume a uniform profusion of small bubbles that do a better job of oxidizing the wastes. Increased efficiency of some 20 per cent is claimed for the tile that must pass 80 cu. ft. of air per minute. For 40 cu. ft. tile, the boost is approximately seven per cent.

The plate is inert to most acids and alkalis. ELECTRO REFRACTORIES & ABRASIVES CORP., BUFFALO, N. Y.

Portable electric power plant weighs 75 lb

Two models of a new portable gasoline-driven power plant have been designed to provide electric power in remote areas and at unwired building sites.

Model 119 generator is a 1500-watt direct current unit supplying 115 volts at 13 amps. Weighing 75 lb, it can be carried easily and is compact enough to fit into the trunk of a car.

The other generator, designated Model 118, is similar except that it provides alternating current and weighs 135 lbs. This unit is equipped with a two-man carrying handle. PORTABLE-CABLE MACHINE CO., 18 EXCHANGE ST., SYRACUSE, N. Y.

Used tractor converts to pipeline drilling rig

The Joy "Hydrojib" pipeline drilling rig is a combination of a compressor, twin jibs and drills for drilling blastholes for ditches or along right-of-way. In operation, twin hydraulically actuated drilling jibs are sidemounted to a tractor and a Joy WL-80 air compressor unit, driven by power take-off from the tractor, is mounted to the rear. The jibs carry two 3½-inch rock drills on 6-foot chain-type feeds.

From the tractor cab the operator may position the drills almost anywhere within the 25-ft maximum spread of the extended jibs and within 10½ ft from the side of the tractor. An obvious advantage of this system of hydraulic positioning is elimination of much of the tractor "jockeying" usually required to place the drills accurately. Further, the company claims that once in position, the jib will be held absolutely stationary during the drilling operation as long as sufficient hydraulic pressure is supplied.

Since the rig is tractor-mounted, the unit can be moved almost anywhere the tractor can go. JOY MANUFACTURING CO., HENRY W. OLIVER BUILDING, PITTSBURGH 22, PA.

UNIT can be moved almost anywhere.

FOUNDATIONS OF STRUCTURES

Here are sound instructions on every phase of foundation engineering, from how to gather and interpret soil data, and how to plan the support of a structure, to how to handle the construction of that foundation. Describes all types of foundations and gives examples of some actual substructures. **By Clarence W. Dunham, Assoc. Prof. Civil Engineering, Yale University. 679 pp., 464 illus., $8.00**

PLAIN CONCRETE

How to produce and use concrete by modern methods. Every important phase of concrete technology—preparing specifications, supervising construction, and testing concrete and concrete materials—is fully covered. Includes best practices in proportioning, making, placing, finishing, and curing concrete. **By E. E. Bauer, University of Illinois. Third Edition, 441 pp., 106 illus., $6.50**

SURVEYING

Instruments and Methods

A handy guide to precision in small-area surveying in the field and shop. Whether you are aligning machinery, planning construction, setting a jig, or making a map, it shows you the most accurate and rapid methods of surveying the job. Describes everything of importance from the care and use of instruments and equipment, to practical techniques for solving hundreds of specific problems. **By P. Kissam, Princeton University. 384 pp., 260 illus., $5.00**

HANDBOOK OF RIGGING

Condensed into this one book are all the tips, methods, and techniques essential to more effective rigging practices in industrial and construction operations. Deals with everyday maintenance operations—with the transportation and handling of heavy machinery—with the erection and demolition of smaller size structures. Covers everything from ropes, hoisting chains and hooks, to slings and ladders. By W. E. Rossnagel, Safety Eng'r. 321 pp., over 300 illus., $6.00

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LARGE CONTRACTOR PRAISES BANTAM® METHOD

ONE OF 3 truck-mounted Schield Bantam Back Hoes, used by Red Eagle Corp., Columbus, Ohio, to speed contracts in 3 states.

INTERCHANGEABLE ATTACHMENTS quickly adapt Bantams for handling wide variety of Red Eagle jobs with one-man machine.

Red Eagle Corp. says, "Bantam handles a wide variety of jobs at substantial savings."

COLUMBUS, OHIO — Red Eagle Corp., who handle all types of heavy construction work *throughout Ohio, Penn., and N. Y.*, find that truck-mounted Schield Bantam shovel-cranes pay off in getting *more jobs done at less cost.* Owner Nick Knezevich reports, "Our 3 Bantams are the *busiest, most economical* machines we own, and on many road and bridge jobs are the *only* cranes required."

Red Eagle operators like Bantam's close-quarter maneuverability and fast mobility between jobs . . . claim Bantam's rapid hoist and swing speeds, with interchangeable Back Hoe, crane boom, dragline and clam buckets, enable them to *outproduce larger, more expensive rigs* on many scattered assignments over 3-state area.

Despite almost constant operation under widely varying job conditions, the cost of maintaining Red Eagle's *three* Bantams during 1952 was 30% less than was required to keep *one* larger machine in operation. Average Bantam repairs for the period amounted to *less than $80 per machine.*

Typical Red Eagle Operations handled by low-cost Bantams

Million-Dollar Highway Job!
In relocating Ohio Route #250 in Harrison County, one Bantam dug 6300′ of trench . . . laid and backfilled *all* pipe, ranging from 12″ to 60″ diameter, at 8′ depth.

3-Span Steel Bridge!
At Johnstown, Ohio, Bantam excavated channel . . . poured concrete abutments and set *all* steel (65,600 lbs.). Bantam also dug *all* trench and placed *all* pipe. Job completed 3 months ahead of schedule!

$109,591 Bridge Contract!
On Ohio Hwy. 725 in Preble County, Bantam dug footings . . . handled channel and structure excavation . . . removed old abutments . . . poured wing walls on box culverts and laid 42″ drain pipe.

SB-E-3

"Why not find out how much you can save with Bantams?"

Your nearby Bantam Distributor will gladly demonstrate Bantam economy on your work, without obligation. Just send post card or letter, for complete information today. Be sure to ask about *new heavy-duty Bantam T-35.* It gives you 6-ton crane capacity, plus many exclusive improvements — including *new remote control* (extra) — for faster, more economical operation.

New Bantam T-35 HOE
Sells for less than $6600.00
(Plus truck and mounting charge)
FOB Waverly, Iowa

Includes complete Back Hoe unit, with boom, stick and bucket. Price subject to change without notice.

SCHIELD BANTAM CO., 201 Park St., Waverly, Iowa.
World's largest producer of truck-mounted cranes and excavators

New Products briefs . . .

• **Grader models**—General Motors two-cycle diesel engines, join the International Harvester models in two graders, manufactured by the Galion Iron Works & Manufacturing Company, Galion, Ohio. Model 104 grader can employ a G-M 3-71 diesel rated at 85 hp; Model 118 has a 104 hp 4-71 G-M diesel.

• **Rope weights**—Overhauling weights that include a ball-bearing swivel, are now being manufactured and sold by General Machine & Welding Works, 1100 East Second Street, Pomona, Calif. The angular contact, ball-bearing swivel is said to prevent load from spinning or getting out of control, and eliminate twisting forces on the wire rope. The weights come in five sizes from 7 in to 13 in. in diameter.

• **Paper curing blanket**—A new curing blanket of reinforced paper, bleached white on one side to reflect solar heat, has been developed by the Sisalkraft Company, 205 West Wacker Drive, Chicago 6, Ill. The blanket has been designed to prevent excessive heat on concrete slab surfaces as well as to retain sufficient moisture during the early period of hydration. The blanket will be available in any width up to 26½ ft. Under ordinary job conditions and a 72-hr curing period, the blankets are said to be re-usable a minimum of fifteen times.

• **Spiral reamer**—The Ridge Tool Company of Elyria, Ohio, announces a new "Rigid" spiral reamer. The company claims that the new reamer reams pipe fast, easily and cleanly, and cuts holes in sheet metal smoothly with no chatter. The reamer has a capacity of ⅛ in. to 2 in. and is equipped with a reversible ratchet.

• **Truck mixer sizes**—Challenge truck mixers, distributed by Cook Bros. Equipment Company, 3334 San Fernando Road, Los Angeles 65, Calif., can now be purchased in 3, 3½, 4, 5, 6 and 6½ cu yd sizes. Using pre-mixed concrete, the mixers can carry between ½ and 1 yd extra payload provided the truck is sufficiently large to handle the increased amount.

• **Protractor triangle** — "True-Angle," an adjustable protractor triangle, manufactured by the Alvin Company, Windsor, Conn., can be set to graduations of ½ deg and held in place with a knurled screw. It is available in three sizes: 6, 8, and 10 in.

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EDITORIALS

Bid shopping is an internal problem

CONGRESS has had its fingers burned so many times when it tried to regulate the inner workings of industries that we won't be surprised to see the proposed "bid-shopping" legislation founder on the lawmakers' wariness. Such a fate is not to be regretted for the legislation relates to an internal problem of the construction industry that can best be worked out by construction men themselves.

Senate and House bills, which are expected to be reported favorably out of committees, call for the naming of the proposed mechanical specialty subcontractors and the amount of their bids at the time a contractor submits his bid on federal work. Associations of contractors in the mechanical trades say such a law will eliminate the evils of bid shopping, wherein the general contractor who gets a contract plays his prospective subcontractors against each other, obtaining prices that are lower than the ones on which the original bid was made. They claim that under that system, the general contractor, already guaranteed the price of his job, pockets the amount of money thus "chiseled"—an amount that might have been saved if the proposed law were in effect.

At first look, such a law might seem a reasonable protection of a group that maintains it has been victimized. Moreover, general contractors, haunted by the specter of separate-contract laws, might consider it an acceptable compromise. The Associated General Contractors of America, however, is strongly opposed, presenting a number of arguments that have been aired in these pages (ENR April 23, p. 23).

The general contractors' attitude might be considered uncompromising were it not for the fact that they have offered to join with the mechanical groups in a within-the-industry approach to the situation. Pointing to their code of ethics, which deplores bid shopping, and asserting that the chiselers are decidedly in the minority, AGC last year proposed the establishment of joint cooperative committees, composed of AGC members and members of the respective mechanical groups. These committees would develop acceptable bidding and awarding procedures. Also proposed were local joint committees of AGC and mechanical groups. These local committees could consider charges of procedural violations, and appeals could be carried to the national committees.

The idea of such voluntary cooperation is not new. Well-known examples are found in baseball and motion pictures, and the construction industry has developed a useful means for ironing out some of its labor difficulties: the National Joint Board for the Settlement of Jurisdictional Disputes.

But the mechanical contractors—at least the National Electrical Contractors Association—did not accept the AGC proposal, evidently preferring a law that imposes their will on the general contractors rather than the harmony-promoting cooperative approach, which admittedly calls for diligent and enlightened work at both local and national levels.

Congress will do well to avoid tampering with this intra-industry problem, leaving it to the good will and understanding of ethical leaders among both the mechanical contractors and the general contractors.

New waterworks tool—TV

THE UNEXPECTED had to happen, of course. When television began to come into full flower, forecasters freely and gloomily predicted that it would ruin show business, make things harder for the newspapers, affect department store sales, change methods of teaching. But none was far-sighted enough to see any effect on municipal operations.

The forecasters—and the TV industry itself—reckoned without the inquisitive instincts of operators of municipal pumping plants. When some of these men noted that they were getting sharp increases in water consumption regularly spaced at the hours and half-hours, with abnormal decreases in consumption in between, they began to investigate.

As a result, they have discovered that there is a distinct relationship between water consumption and TV—presumably good programs keep viewers thirsty as well as breathless, and water pressures rise. Bad programs, and—sadly enough—commercials, apparently have the opposite effect, and viewers leave their sets for drinks of water, to mix more convivial drinks—or use other facilities requiring quantities of water.

The latent possibilities of this discovery for managers of municipal water plants are intriguing. By the simple expedient of installing TV sets in their pumping plants they can take much of the drudgery out of the operators' work and at the same time step up the efficiency of plants in meeting fluctuating demands.

Thus a plant operator, in the station break between the second and third half-hour of the "Show of Shows", while making a quick trip for relief and refreshment, can assume that thousands of televiewers in his city are doing likewise. So he simply takes an added step or two to speed up his pumps momentarily to maintain pressure until Sid Caesar and Imogene Coca get back on the screen.

And in planning ahead, the forthcoming Marciano-Walcott fight should provide an obvious opportunity to shut down for quick repairs while the nation sits glued in its living rooms, away from the tap and flush. But the operators must be quick about such a shutdown, and must watch their TV sets lest a quick knockout catch them unprepared as fight fans step from their living rooms in great number.

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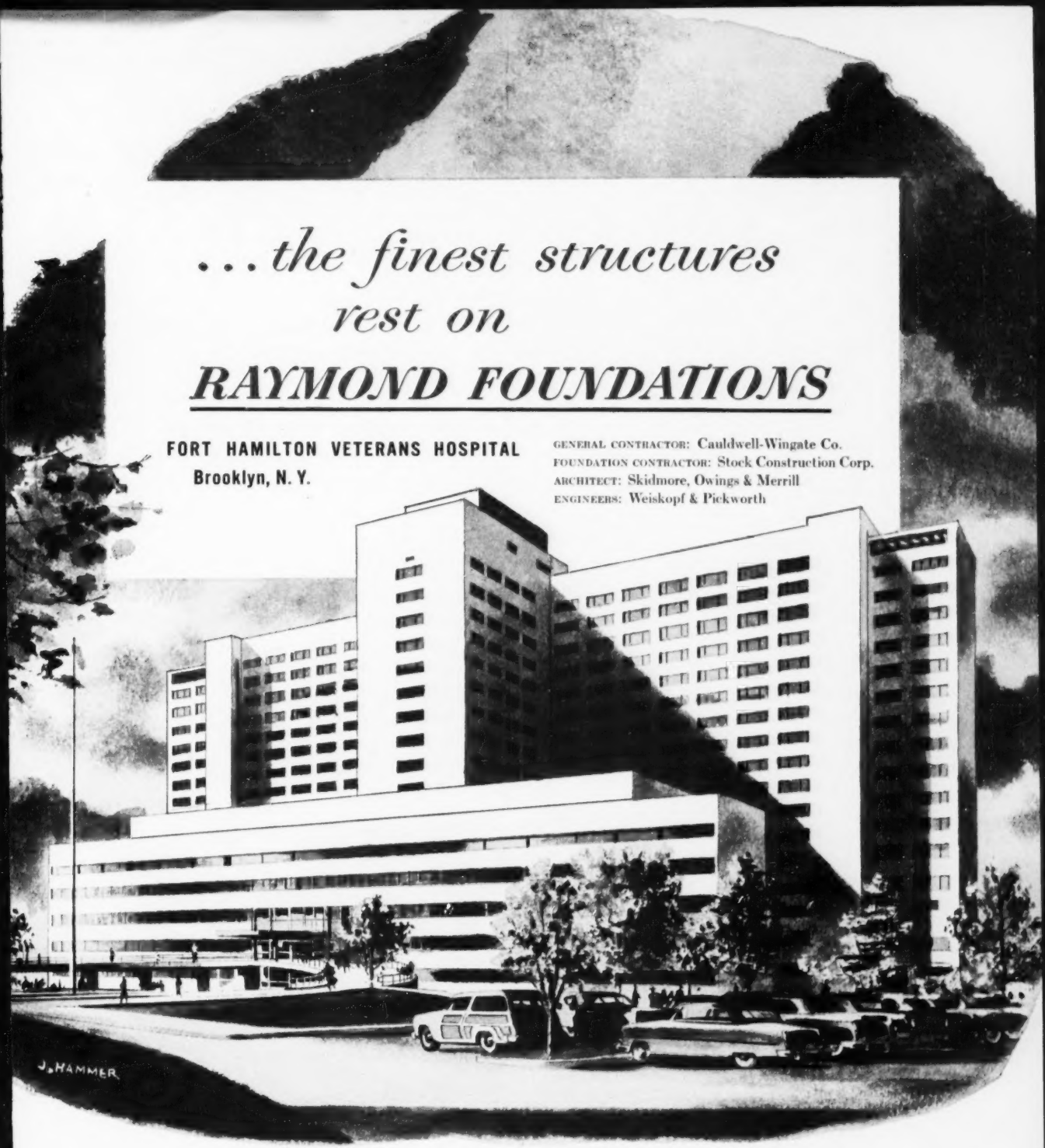

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